# Manual

# TTX 300 Online
# Cobra Online

# Contents

General notes ..... 4
Copyright ..... 4
Overview ..... 4
Setup ..... 5
Unpacking of printer ..... 5
Setting and connecting of printer ..... 5
Serial interface connection ..... 6
Card slot ..... 6
Inserting the thermal transfer ribbon ..... 7
Inserting the label material ..... 8
Narrow material web adjustment ..... 9
Removal of material and ribbon ..... 10
Operation ..... 11
Front panel ..... 11
Start / connection to computer ..... 11
Functions of keys ..... 11
Functions of LED elements ..... 12
Adjustment of DIP switches ..... 12
Adjustment of print head temperature ..... 13
Maintenance ..... 14
Overview ..... 14
Changing and cleaning the print head ..... 14
Cleaning the feed roller ..... 15
Cleaning the gap sensor ..... 15
Cleaning the material and ribbon guides ..... 15
Tag / Label material ..... 15
Ribbon ..... 15
Troubleshooting ..... 16
Errors ..... 16
Status printout ..... 17
Sensor check routine ..... 17
Gap sensor test - ON/OFF key ..... 18
Head position sensor test - FEED key ..... 18
Ribbon sensor test - CUT key ..... 18
Service ..... 19
Rear housing ..... 19
Dismount Mechanics / Electronics from base plate ..... 19
Dismount inner, vertical base plate ..... 20
Remove board ..... 21
Transformer ..... 21
Power supply (input filter) ..... 22
Fuses of power supply and board ..... 22
Gap / Material Sensor ..... 23
Sensor / Ribbon unwinder ..... 23
Micro switch / print head pressure lever ..... 24
Motor, round belt and feed roller ..... 24

Print head ..... 25
Print head mounting and adjustment ..... 25
Head pressure ..... 26
Ribbon un- and rewind ..... 27
Brake value of ribbon unwind ..... 27
Single Start Switch (optional) ..... 27
Sensor check routine ..... 28
Gap sensor - ON / OFF key ..... 28
Micro switch / print head lever - FEED key ..... 28
Ribbon sensor - CUT key ..... 28
Reflex Sensor (optional) ..... 29
Single Start Switch (optional) ..... 29
Factory reset ..... 29
Appendix ..... 30
Option: Rewinder ..... 30
Option: Dispenser ..... 31
Dispenser threading detail ..... 32
ON/OFF Key - Fonts and Checkerboard Pattern ..... 33
FEED Key - Notched stock test ON/OFF & FEED – Notchless stock test ..... 34
Bar codes, Lines ..... 35
Technical Specification ..... 37
Cable Drawings ..... 39
Internal Cables ..... 40
RS232 Interface Cable ..... 41
Circuit Diagrams ..... 42
Component Diagram ..... 47
Board Layout ..... 48
Index ..... 49

# General notes

## Copyright

This User Manual and its contents are subject to copyright. The publisher's prior written consent must be obtained for reproduction of the manual as a whole or part thereof.

Names are generally given without any reference to existing patents, registered patterns or designs, or trademarks. The omission of a corresponding note does not imply that the names can be used freely. All trademarks are acknowledged.

The manufacturer reserves the right to technical and other alterations without prior notice.
The publisher cannot warrant the accuracy of the content of this manual.

**Attention :** The following sign is used to mark up - that this is an important point !

**Note: Please follow the notes shown in this text - it will help to cover all situations and keep your engine working. .**

## Overview

The TTX-300 is a feature rich printer offering a wide variety of choices for text, barcode, and graphic print. The printer combines quality thermal transfer print with ease of operation in a space saving package.

To maintain proper performance, use original parts and accessories. The use of parts not in compliance with our exacting standards may result in unnecessary problems.

The housing of the unit may only be opened by authorised personnel. Loading of foil, tags, and labels should be carried out only by trained personnel

**Warning: Do not operate the printer with the cover open. Fingers, hair, clothes, jewellery, etc. may be caught in the printer mechanism.**

If the printer will not be used for an extended period of time, relieve pressure on the printhead by opening the locking lever.

Wait at least 10 seconds after switching the unit "OFF" before switching it back "ON".

Wait at least 60 seconds after switching the printer "OFF" before removing or inserting PLUG IN CARDS.

Wait at least 3 minutes after switching the printer "OFF" before disconnecting the printhead.

# Setup

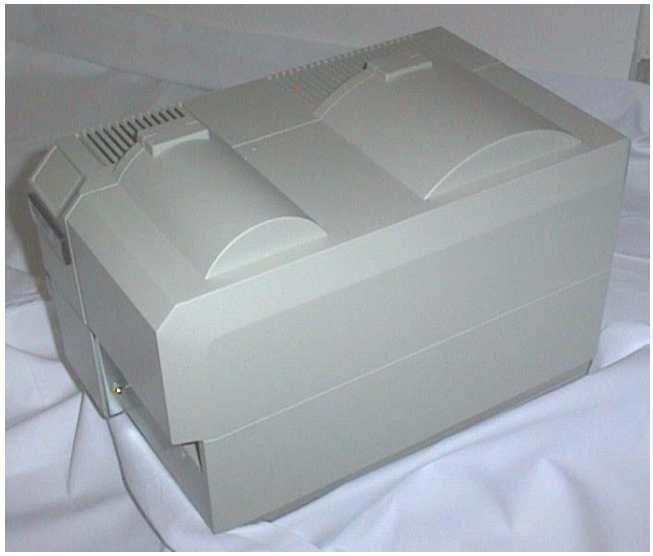
## Unpacking of printer

Exercise care when unpacking the printer.

1. Remove top foam packing.

2. Take printer out of cardboard box.

Always carry the printer by the base plate. Never use the front cover, reel holder, or printhead as carrying handles.



## Setting and connecting of printer

**Warning: Unplug the printer before checking/changing voltage or fuses!**

Check the main voltage setting and fuses. The main voltage setting is visible through a window in the fuse carrier. If necessary, change the main voltage by removing and turning the insert. The fuses can be replaced by removing the fuse carrier.

## Serial interface connection

**Caution: Before connecting or disconnecting the interface cable, switch "OFF" all devices.**

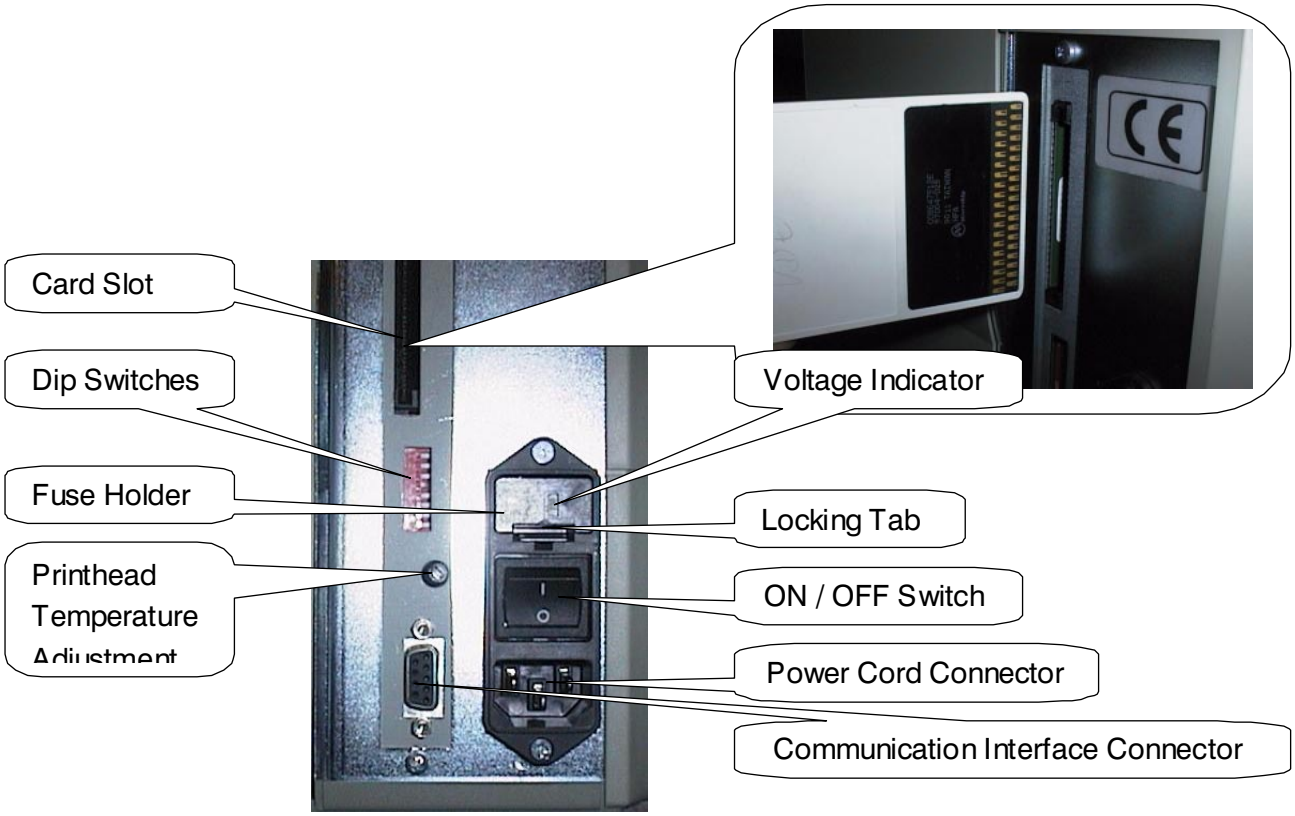
A serial interface V.24/DB 25 (RS232) is the standard printer connection.

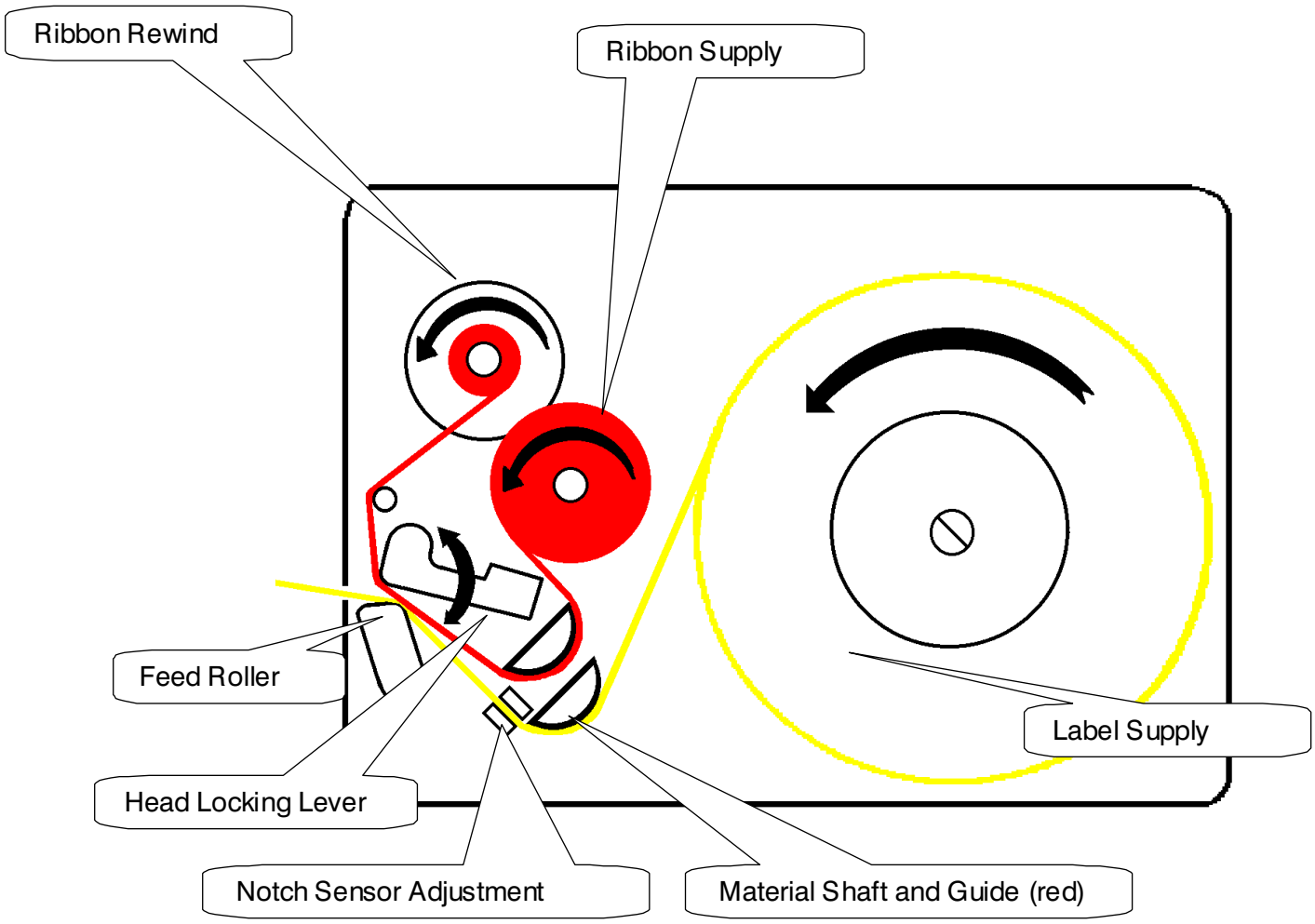
## Card slot

This unit is designed for use with optional font and logo cards.

Cards with maximum of 128 KB may be used.

**Caution: Turn the printer "OFF" and wait at least 60 seconds before inserting and removing cards. Use only approved cards. Take care of the card direction (move in).**





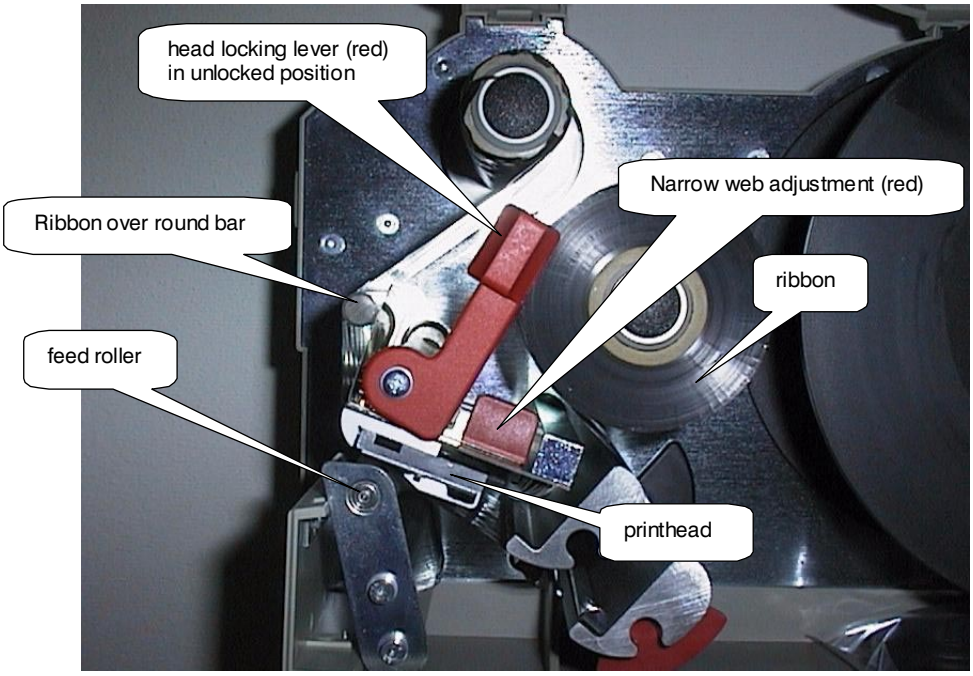

## Inserting the thermal transfer ribbon

- Slip a ribbon onto the supply shaft on the right-hand side so that it unwinds in a counter clockwise direction.
- Attach an empty cardboard core onto the rewind shaft on the left-hand side.
- Unlock the head by raising the head locking lever.
- Thread ribbon as shown. Guide ribbon around rollers and fasten self adhesive ribbon end counter clockwise at the cardboard core. Tighten the ribbon by turning the ribbon rewind in a counter clockwise direction.

# Inserting the label material

- Hang label material in label supply reel so that it unwinds in a counter clockwise direction.
- Adjust the red material guide to full width.
- Thread the material as shown. Thread past the material guide (red), through the gap sensor and between printhead and feed roller.
- Set the red material guide to the correct width
- Position Narrow Web Adjustment according to material width
- Close the head locking lever.
- Close the cover.
- Switch "ON" printer - the Green/Power LED glows.
- Press “FEED” to feed material until the ribbon is free of wrinkles. Punched material feeds one label length each time the “FEED” is pressed. Continuos material is fed as long as ”FEED” is operated. When using punched or Imark material, adjust the sensor by moving the metal tab on the Material Shaft until the tickets feed correctly.

**Warning: When the cover is open, fingers, hair, clothing, jewellery, etc. may be caught by the printing mechanism.**

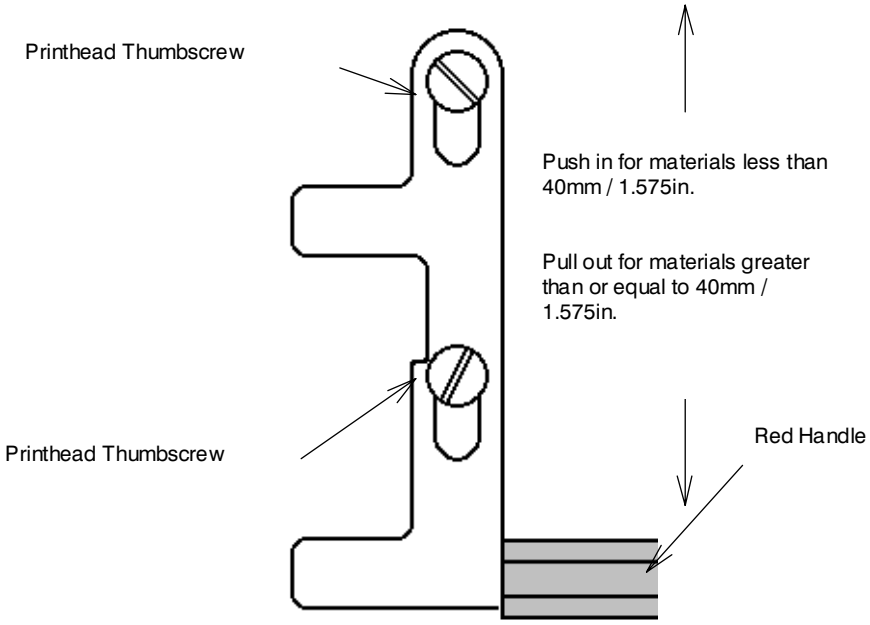


# Narrow material web adjustment

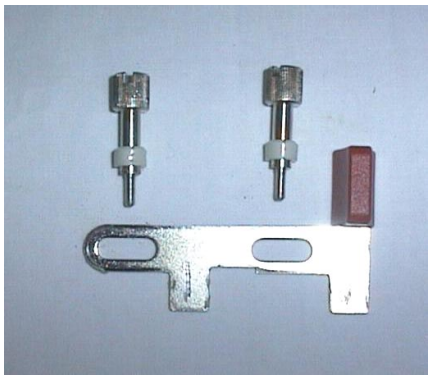
- Push the Narrow Material Web adjustment IN for narrow material, less than 40mm / 1.575in.

- Pull the Narrow Material Web adjustment OUT for wide material, greater than or equal to 40mm / 1.575in.

**Note:** **Do not adjust the printhead thumbscrews.**


Printhead Thumbscrew
Push in for materials less than 40mm / 1.575in.
Pull out for materials greater than or equal to 40mm / 1.575in.
Printhead Thumbscrew
Red Handle

**Narrow Material Web Adjustment - Top View**



# Removal of material and ribbon

- Material and ribbon can be removed after opening the head locking lever.

# Operation

## Front panel

The front panel consists of 3 push-button switches and 3 LED's.

**The 3 switches:**
ON/OFF
FEED
CUT

**The 3 LED's:**
Power - Green
Error - Red
Data - Yellow

## Start / connection to computer

Connect interface cable from computer to the printer.

Switch "ON" the printer, the Green/Power LED glows.

Press "ON/OFF", the printer is switched to "ONLINE mode", the Yellow/Data LED glows and the printer is ready to receive data and print labels.

## Functions of keys

ON / OFF: Switch to ONLINE or OFFLINE mode. ONLINE mode is indicated by the Yellow/Data LED, the unit is ready to receive data.

If a print job is interrupted, the Yellow/Data LED flashes rapidly indicating that a quantity remains. Resume print by pressing the FEED key.

If an error is indicated (Red/Error LED), the error will be cleared by pressing "ON/OFF".

FEED: In the OFFLINE mode material is advanced. If punched material is used, one label length is advanced. For continuos material, stock is fed as long as "FEED" is pressed.

If a print job is interrupted, "FEED" resumes print.

CUT: Reserved for optional functions.

# Functions of LED elements

The front panel has 3 LED's that indicate the printer's status.

| | | |
|---|---|---|
| POWER | green | Power is "ON" |
| ERROR | red | Error, see "Troubleshooting" section |
| DATA | yellow | LED glows if printer is "ONLINE"<br>LED flashes as unit prints, receives data, or builds an image.<br>LED blinks rapidly if a print job is interrupted. This indicates that there is a quantity remaining.<br>LED displays error code with 5 short/long flashes. |

# Adjustment of DIP switches

Below the interface connection are DIP switches.

Use these switches to adjust the following parameters.

The new DIP switch setting will take effect the next time the printer is turned "ON".

| Switch | | | Function |
|---|---|---|---|
| 1 | On = 1 Stop Bit | Off = 2 Stop Bits | Select Stop Bits |
| 2-3 | Switch 2 | Switch 3 | Select Parity |
| | OFF | OFF | NONE |
| | ON | OFF | SPACE |
| | OFF | ON | ODD |
| | ON | ON | EVEN |
| 4-5 | Switch 4 | Switch 5 | Baud Rate |
| | OFF | OFF | 19200 |
| | ON | OFF | 9600 |
| | OFF | ON | 4800 |
| | ON | ON | 2400 |
| 6 | ON = XON/XOFF | OFF = Hardware | Handshaking Protocol |
| 7 | ON = Online | OFF = Offline | Power-up Mode |
| 8 | ON = Direct Thermal | OFF = Thermal Transfer | Print Mode |

Switch position: ←ON OFF→

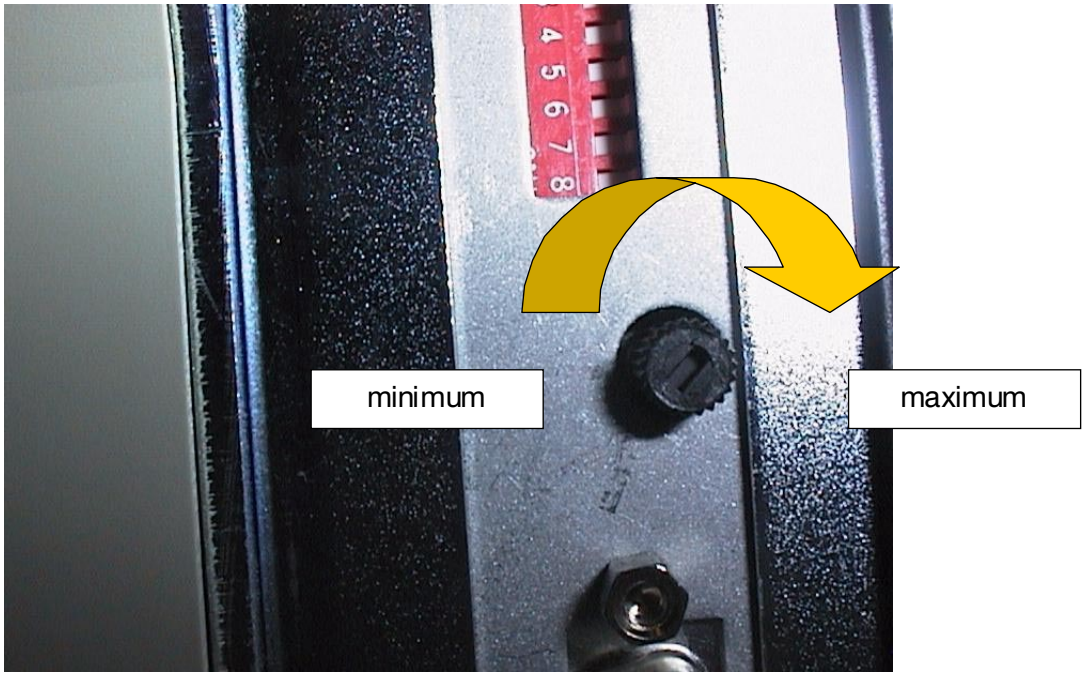
# Adjustment of print head temperature

The printhead temperature can be adjusted by turning the knob located below the interface connection.

Turning clockwise raises the temperature, turning counter clockwise lowers it.

**Print appearance related to temperature setting**

| | |
|---|---|
| Correct temperature: | Print is sharp and crisp |
| Low temperature: | Faint print |
| High temperature: | Smeared print, characters too bold |
| Extremely high temperature: | Ink particles evaporate, causing faint print. Printhead is overheated. Damage to printhead is possible. |



# Maintenance

## Overview

Careful and regular maintenance will raise the performance and longevity of the printer.

Regular cleaning of the printhead is especially important. A clean printhead ensures high print quality and extended head life.

Periodically remove any deposits of paper, adhesive and ribbon from the feed roller and gap sensor.

## Changing and cleaning the print head

**Warning:** **Unplug the printer before cleaning or changing the printhead!**

**Caution:** **Static electricity can destroy electronic components, including the printhead. Make sure you are properly grounded before servicing the printer.**
**Wait at least 3 minutes after switching the printer "OFF" before disconnecting the printhead.**
**After changing the print head – the new resistor value has to be downloaded into the printer (see print head).**

- Switch unit off and unplug the printer!
- Open head locking lever.
- Remove material and ribbon.

- Unscrew 2 knurled thumbscrews on the printhead holder.

- Carefully remove the printhead.

- Disconnect printhead plug. Wait at least 3 minutes after switching "OFF" the unit!

- Clean print head with dust-free cloth and Avery Dennison cleaning fluid. Metal objects must never get into contact with printhead surface! Never use knives or o objects with sharp edges for cleaning. Be aware of static electricity.

- Reconnect the printhead plug.

- Fasten the printhead using the 2 knurled thumbscrews.

- Re-insert the ribbon and labels.

- Lower the head locking lever.

## Cleaning the feed roller

**Warning: Unplug the printer before cleaning!**

- Switch unit OFF and unplug the power cord.
- Remove material and ribbon.
- Clean print roller with a dust-free cloth and Avery Dennison cleaning fluid. Never use knives or objects with sharp edges for cleaning.

## Cleaning the gap sensor

Use compressed air to clean the gap sensor.

If the sensor is extremely dirty, use a dust-free cloth and Avery Dennison cleaning fluid.

## Cleaning the material and ribbon guides

Contaminated surfaces cause poor feeding and reduce print quality. Regularly clean the material and ribbon guides.

## Tag / Label material

The printer may be used for direct thermal and thermal transfer printing.

Use Avery Dennison tags and labels to ensure high quality print.

If the tag/label material is extremely abrasive, the printhead will wear faster than usual.

The width of the ribbon should exceed the width of the tag/label material. This protects the printhead from unnecessary wear.

## Ribbon

Use Avery Dennison ribbon to ensure high quality print.
IInferior quality ribbons reduce printer performance, print quality, and printhead life.

# Troubleshooting

## Errors

Errors during operation are indicated by the Red/Error front panel LED.

Press the FEED key to display the error code with the Yellow/Data LED.

After the error is corrected, press the ON/OFF key to set the printer back online. After switching the printer to ONLINE, the job will be continued.

| **Error Code**<br>● Long Flash<br>• Short Flash | **Condition** | **Corrective Action** |
|---|---|---|
| • • • ● ● | Head locking lever is raised | Lower the lever. Press FEED to re initialise top of form. |
| • • ● • • | End of tag/labels | Load more tags/labels. Press FEED to re initialise top of form. |
| • ● ● • • | Ribbon end | Load more ribbon. Press FEED to re initialise top of form. |
| • • • • • | NOVRAM read error | Call service technician |
| • ● • • • | NOVRAM write error | Call service technician |
| • • • ● • | No notch/gap found | Check that correct material is inserted.<br>Check that sensor is clean.<br>Check material guide and position of sensor.<br>Check that the label size in the print job is correct. |
| • • ● ● • | RS232 - Framing error | Check baud rate, stop bits, and word length. Correct them at the computer or printer. |
| • ● • ● • | RS 232 - Receive Buffer Overflow | Check handshaking/flow control |
| • ● ● ● • | RS232 - Parity | Check Parity DIP switch |
| • • • • ● | Memory Allocation Error | Call service technician |
| • ● • • ● | Font Allocation Error | Call service technician |
| • • ● • ● | Unknown Interrupt | Call service technician |
| • ● ● • ● | Speedo Font Error | Call service technician |

## Status printout

Status printouts show internal printer fonts, and test patterns. Access the printouts by holding down different key combinations while switching the power “ON”. Please use material with width of approximately 100 mm / 4 inches.

Different status print out

| | | |
|---|---|---|
| STA1 | ON / OFF | Fonts and check pattern |
| STA2 | FEED | Version number – dot pattern and a position pattern (used for notched media) |
| STA3 | ON/OFF + FEED | Version number – dot pattern and a position pattern (used for notchless media) |

To activate:

- Press and hold the desired key(s).
- While pressing the key(s), switch the power ON.
- When the Green/Power LED flashes, release the key(s). The printer will build the test image and print the test.

To stop:

- Press and hold the ON/OFF key until print stops.

## Sensor check routine

Using the keypad and LED’s it is possible to test the operation of the sensors.

There are 3 sensor in the printer:

- Gap sensor determines top-of-form and out-of-labels.
- Head Position sensor checks if the head is raised or lowered.
- Ribbon sensor detects out-of-ribbon.

To access a sensor test:

- Press and hold the CUT key.
- While pressing the CUT key, switch the power ON. The DATA LED will light.
- Release the Cut key.
- Press the key required to activate the desired test.

## Gap sensor test - ON/OFF key

| LED | Status |
|---|---|
| Green/Power | Air or very translucent backing paper is detected. |
| Red/Error | Backing paper, liner, or thin paper is detected. |
| Orange | Cardboard, heavy paper is detected. |

## Head position sensor test - FEED key

Locking and unlocking the printhead lights the Power or Data LED's:

Power LED ON: Head lever locked

Data LED ON: Head lever unlocked

## Ribbon sensor test - CUT key

All LED's flash as the ribbon **supply** shaft is rotated.

Note: The ribbon sensor test can also be used to check the operation of the LED's.

# Service

**Attention: Unplug mains lead before starting any service !**

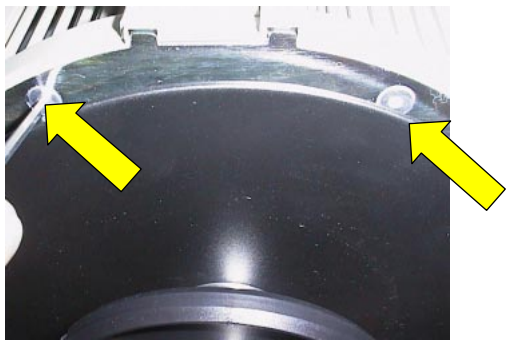
## Rear housing

- loosen 3 screws (allen key 2.5)
  1 pcs upper, left, 2 pcs up (covered half by the disc of material unwinder)

- tip housing backwards, bend left side slightly away.
  Following the housing may be removed completely backwards

- for releasing the cable of the operators panel lift plug 3 mm away from the board

- mounting in reverse order
  Connection of cable: Plug in the cable with the contact side forward and press plug

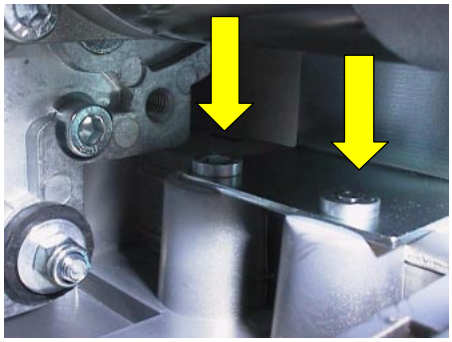


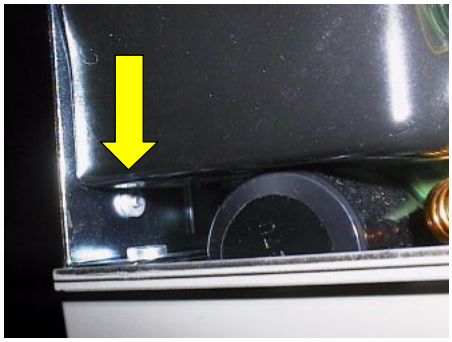
## Dismount Mechanics / Electronics from base plate

This step is necessary when doing services at:

- feed roller, material and ribbon guidance, ribbon un- and rewind, print head pressure axle, printhead fixation and belt

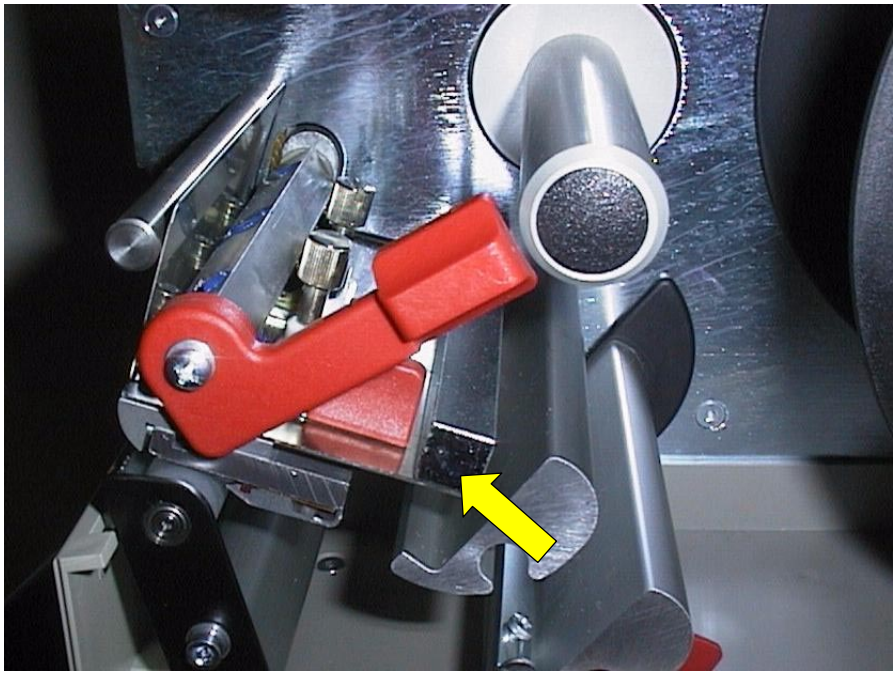
- loosen 4 screws at lower side of base plate and remove complete block upwards

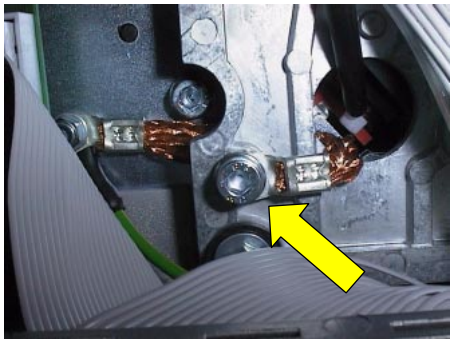


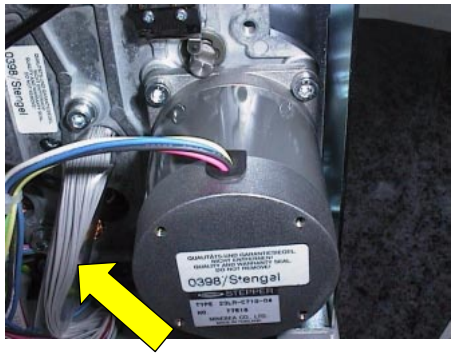


# Dismount inner, vertical base plate

- remove pressure lever,
- dismount connection of support axle/feed roller
- remove print head fixation screws (2 pcs)
- remove grounding cable
- loosen 4 screws and draw inner base plate backwards
- disconnect cables to print head, gap sensor and micro switch (pressure lever) off the board
- remove print head carrier plate complete with square fixation axle (1 screw from inner side)
- remove ribbon end sensor





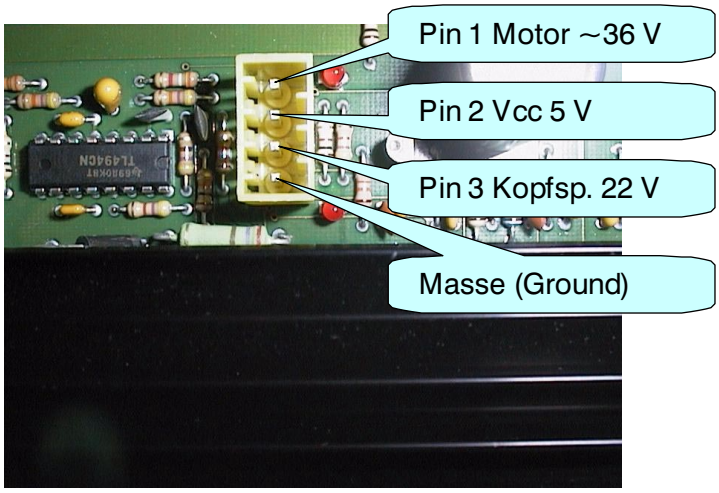


## Remove board

For the TTX 300 board with the number 99670-xx-0 are used (different to the OFFLINE board number 99671-xx-0 the IC's 13,16,7 and 6 are not placed). Older versions of the TTX 300 may use different board types.

- unplug cables
- pull board from the plastic snapper ( 1pcs ), loosen 2 screws from metal angle and pull up the board
- check new board to voltage adjustment

| | |
|---|---|
| Pin 1 | voltage to motor ~36 V (not adjustable) |
| Pin 2 | Vcc 5 V (not adjustable) |
| Pin 3 | voltage to print head (adjust with Pot P1 and Pot RV6 to 22V) |
| Pin 4 | GND |

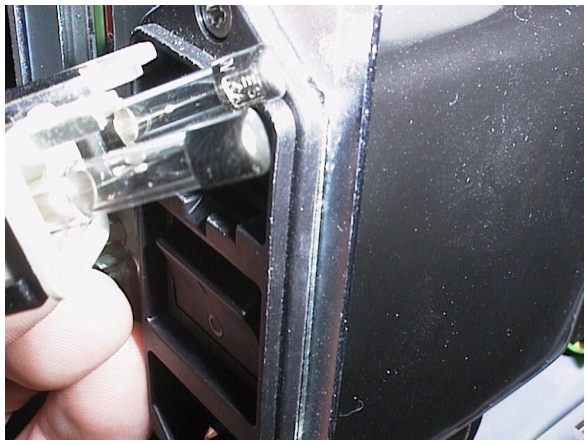



## Transformer

- for mounting / dismounting fix the inner metal bolt with a pair of pliers in order to avoid twisting

## Power supply (input filter)

- before switching on the unit after exchange of the power supply check setting of voltage and the corresponding fuses and correct if necessary



## Fuses of power supply and board

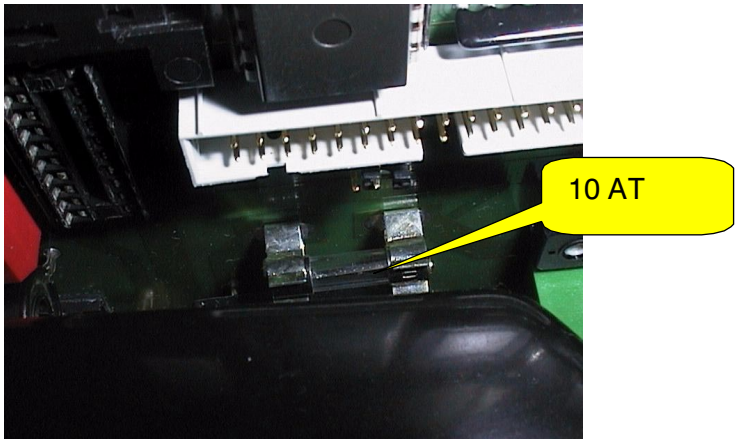
The fuses can be replaced by removal of the fuse element

Mains voltage set up is possible by rotating the insert

Attention : Unplug mains power plug before checking / changing mains voltage or fuses.

Power supply 2 x T 2A at 220-240 V
2 x T 4A at 110/115 V

Board 1 x T 10A at bracket

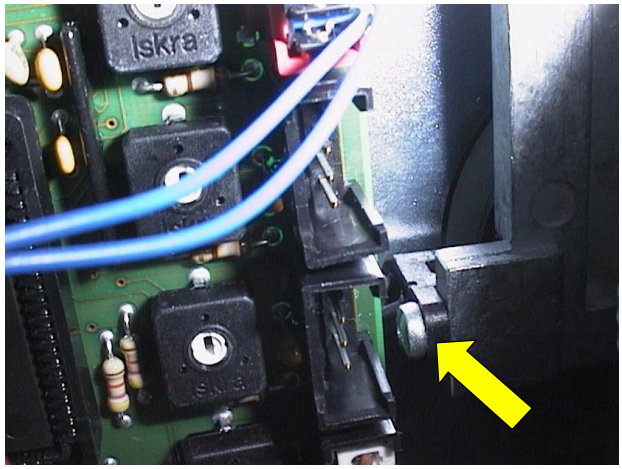


## Gap / Material Sensor

- remove complete material guide ( 1 screw inner side)
- remove gap / material sensor slide from material guidance
- for setting see description of sensor test “CK01”

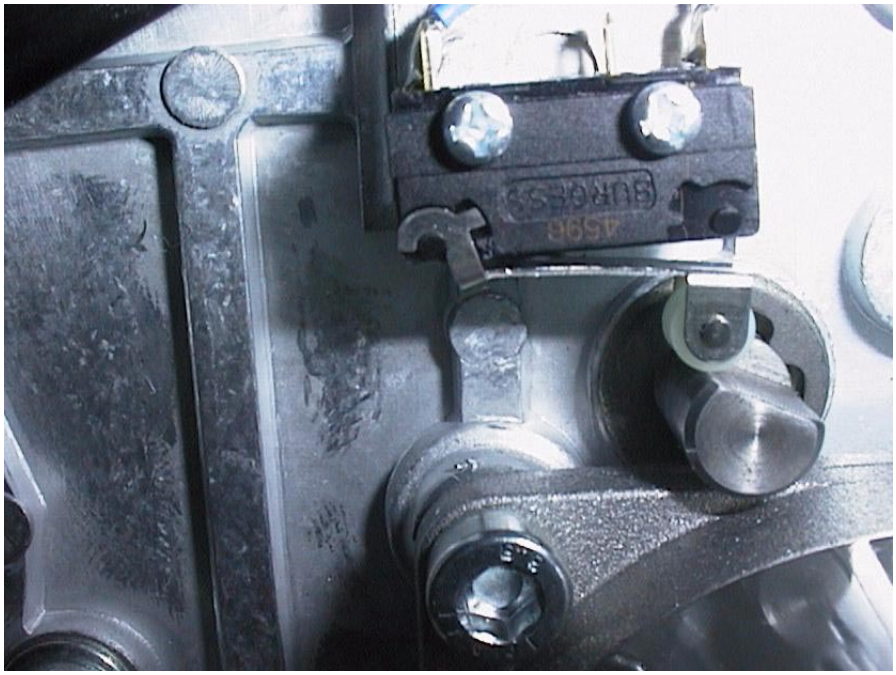
## Sensor / Ribbon unwinder

Accessible after removal of board, twist timing wheel which must not contact sensor.
To check this function see description of sensor check “CK01”.



## Micro switch / print head pressure lever

Accessible after removal of transformer. Screw micro switch so that the lever can still be moved 5 –10 mm in direction of closing after the contact has been reached
(clicking noise).
To check this function see sensor check “CK01”.



## Motor, round belt and feed roller

Accessible after dismounting the inner, vertical base plate and printhead fixation.

- the motors cable guides up and direction forward around the motor and than below it. Please regard this routing, otherwise the housing will not fit anymore
- between feed roller and motor a gap of 1 mm is necessary
- perform status printout “STA4” after mounting a new feed roller

## Print head

To adjust the optimal print quality the resistance of the print head has to fit with the adjustments of the board itself.

Action: Adjust Pot P1 to the maximum (clockwise until block)

Action: Adjust with Pot RV6 a value of 22 V – measured between Pin 4 (GND) and Pin 3 (head voltage)

Send the head resistor via Easy Plug command to the printer. The DATA LED will blink one time.

#HRn (n 0 resistor of the print head written on the head)

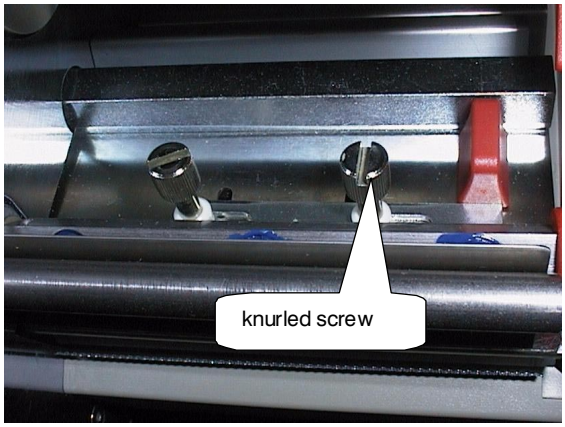
Example: Head resistance - 502 Ohm #!A1#HR502#G

Attention: To send a wrong value can result in bad print quality or damaging the head.

To check your work do status print out STA1 after you have changed the print head (or the board) .

## Print head mounting and adjustment

To adjust the print head use the two headless screws at the front of the print head mounting. The two screws are used to fine adjust the print head to an optimum of print quality (therefore use the status print out STA1) .




- insert media and ribbon
- open the knurled head screws slightly
- take care of an optimal media guiding – otherwise the postion grid on the test label will not be correct

- start status print out STA1 and adjust with the head less screws the best print out

- check your work by using the status print out STA 1 again. The pattern should be clear on both sides of the print out – as well the angle should be 90 degrees.

- finishing the adjustment – secure the headless screws with security paint and fix the knurled screws again

## Head pressure

The adjustment for the head pressure is done by moving the three spring loaded screws mounted in the axle above the print head spring blades. To adjust the pressure move the small label device to the outer side (wide media)

To measure the pressure – we are using the friction supplied to a grease free spring blade (thickness 0.1 mm) and a spring balance of 50 N.

- put in grease free backing paper between the spring blade and the print head to take care not to damage the print head

- for the first step move the spring blade to the inner side of the print axle and adjust a value of 18 – 20 N (value before the blade is starting to move)

- second step move the blade to the outer side of the print axle and repeat step one – but adjust a value of around 16 N only

- do status print out STA1 or STA2 to control your work

- move the small label device into the inner position and check with STA1 that only the half of the print is done

## Ribbon un- and rewind

Accessible after removal of transformer.

- put printer side wards before dismounting in order not to loose or jam the shims at the inner end of the unwinder axle. This would lead to a leaning position of the shaft.

Note: There are no shims at the ribbon rewinder

### Brake value of ribbon unwind

- measured with a cardboard core (wall thickness 3.5 mm) and spring balance 5 N

setting value: 3.6 – 3.8 N (measured in unwind direction)

## Single Start Switch (optional)

If the optional single start switch should be used an additional cable must be assembled to the printer.

Connect the cable to J6 at the main board the other end fits into the hole at the rear side of the printer (older model of printer may not have this hole at the rear side).

To activate the single start switch send the Easy Plug command #Dn

n = 0 switch OFF

n = 1 switch ON

# Sensor check routine

Access to routine

press and keep pressed CUT key for 3 seconds – simultaneously switch on the unit. The function is indicated by means of the LED's. The sensor / switch can be selected by pressing the corresponding keys.
If the value of the pot (depending to the sensor) is not enough use the pot in the sensor wires to extend the value.

## Gap sensor - ON / OFF key

Adjustment

Adjust with Pot RV3 the sensor connected to J8 in a way that the sensor is sensing the backing paper (standard) and the red LED is illuminated. Follow this way: turn the pot until the green LED is illuminated – then turn until the red LED is starting to be illuminated. Move the pot a little bit of way in the same direction until the red LED is bright illuminated.

Test

| | |
|---|---|
| green | air or very light backing paper is measured |
| red | backing paper or thin paper is measured |
| orange | card board etc. is measured |

## Micro switch / print head lever - FEED key

Adjustment

adjust with pot RV5 that the orange LED is illuminated when the lever is open
As soon as the lever is closed, the greed LED is illuminated (the sensor is connected to J5)

Test

green (closed) or orange (open) are illuminated when opening or closing the lever

## Ribbon sensor - CUT key

Adjustment

adjust with pot RV4 the sensor in a way that all 3 LED's are illuminated as soon as the ribbon unwind axle is rotated

Test

when rotating the ribbon mandrel all 3 LED's become illuminated

## Reflex Sensor (optional)

### Adjustment

Activate the reflex sensor via Easy Plug command #RXn

n = 0 normal punch sensor is used

n = 1 reflex sensor is used

Adjust with pot RV2 a maximum difference (voltage) measured between the two lower pins (cable color green and black) on connector J7. By using the sensor with white and black media (paper and black mark).

### Test

Test is done by paper feed

## Single Start Switch (optional)

### Adjustment

not necessary – connected to J 6

### Test

use of switch

## Factory reset

All parameters are preset ex works to specific values. This factory setting can be reproduced at any time as follows:

1. Hold the ON/OFF and CUT buttons pressed and switch on the printer.
2. Hold the buttons pressed until all three LEDs start blinking.
3. Release the buttons and switch off the printer.

The Factory reset takes effect after the next powering on.

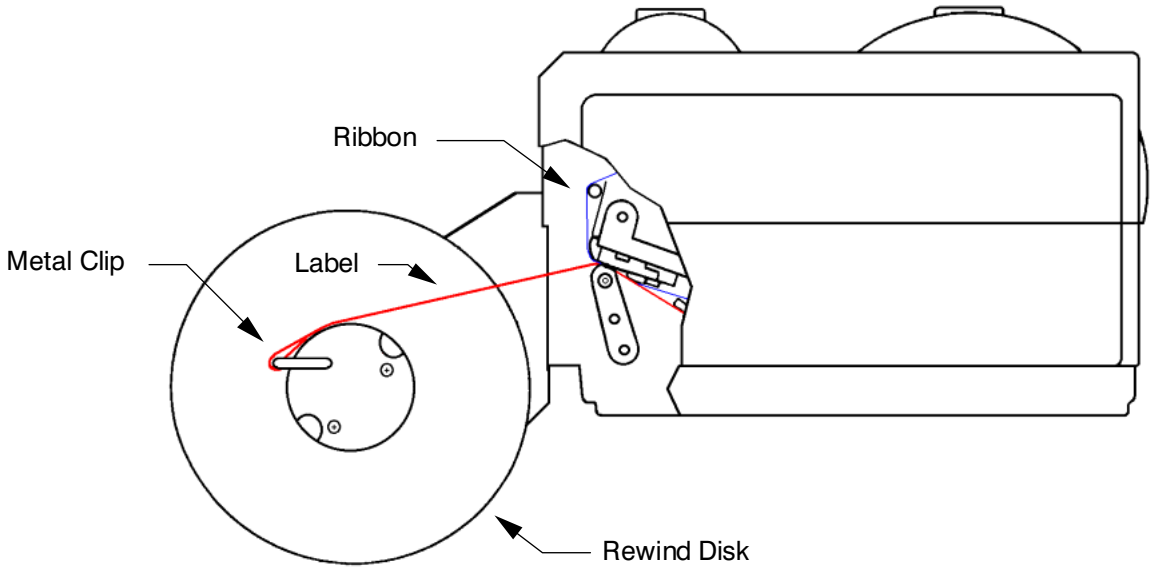
# Appendix

## Option: Rewinder

- The rewind disk has 2 positions: raised and lowered. Make sure the disk is in the raised position. If necessary, push up on the disk to adjust it.

- Insert material according to the following diagram. Fasten the labels to the rewind using the metal clip.

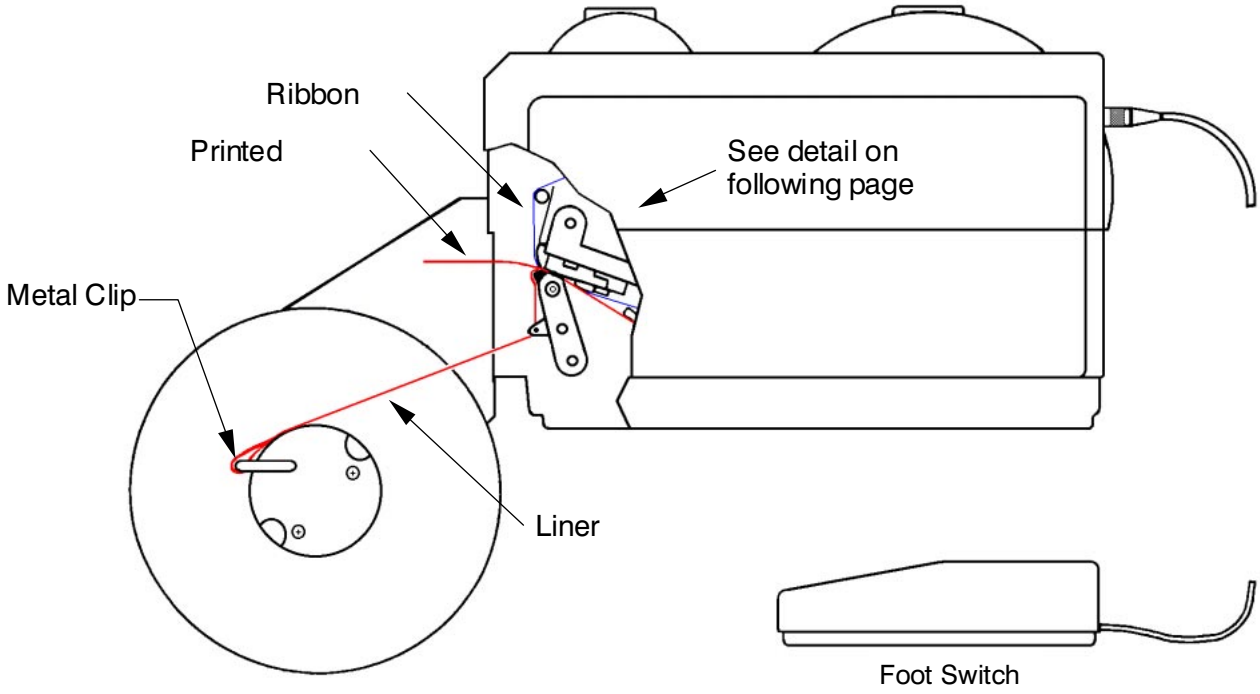
- Remove rewound materials periodically by pulling out the metal clip and sliding the material off the shaft.



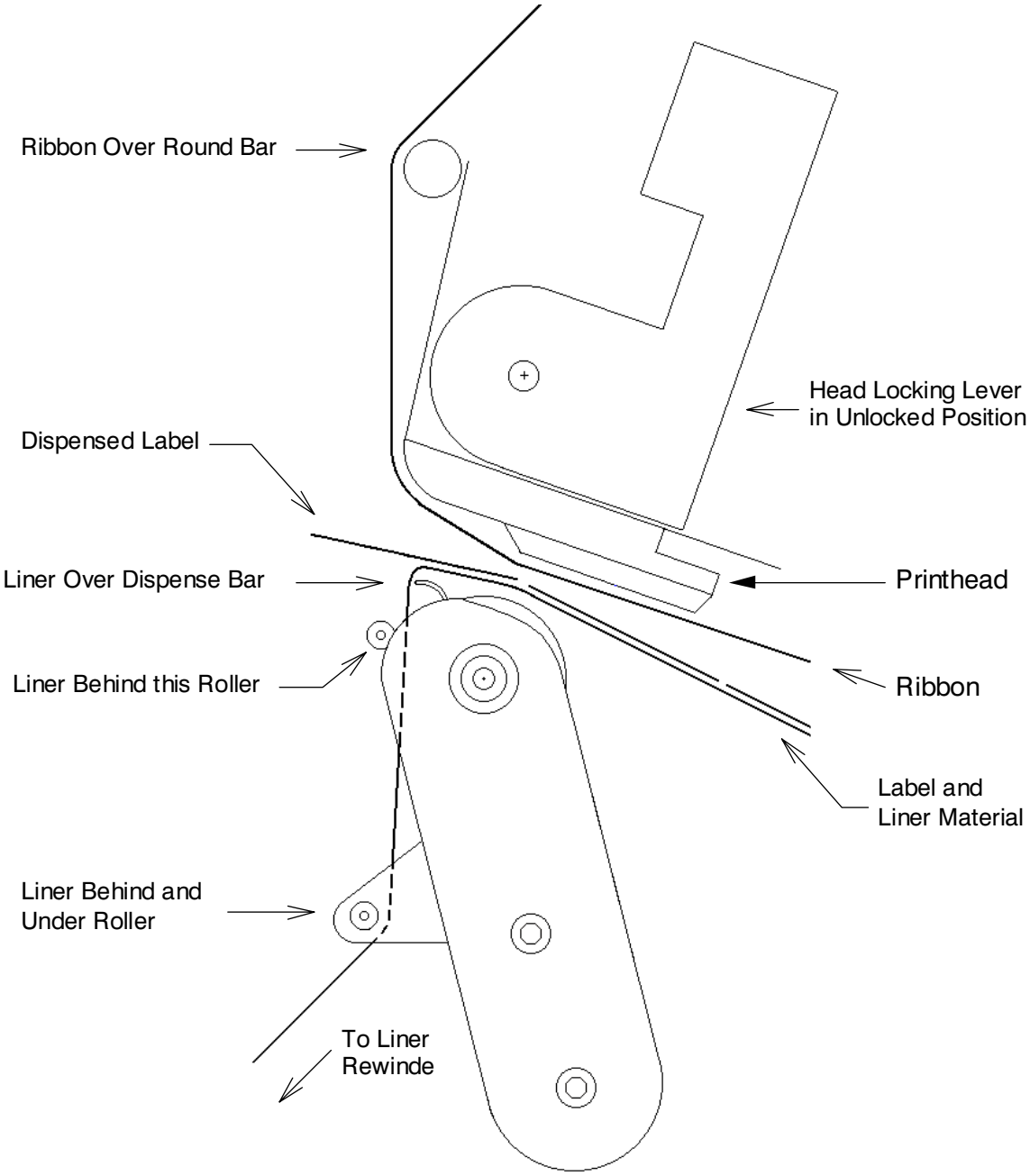
# Option: Dispenser

- Connect the foot pedal to the plug on the back of the printer.
- The rewind disk has 2 positions: raised and lowered. Make sure the disk is in the lowered position. If necessary, push down on the disk to adjust it.
- Remove enough labels to expose 1 ft / 40 cm of backing paper.
- Thread the liner according to the following diagrams. Tighten liner by rotating the rewind disk.
- Each activation of the foot pedal will dispense one label. One or more blank labels may dispense before printed labels are available.
- Remove rewound liner periodically by pulling out the metal clip and sliding the liner off the shaft.

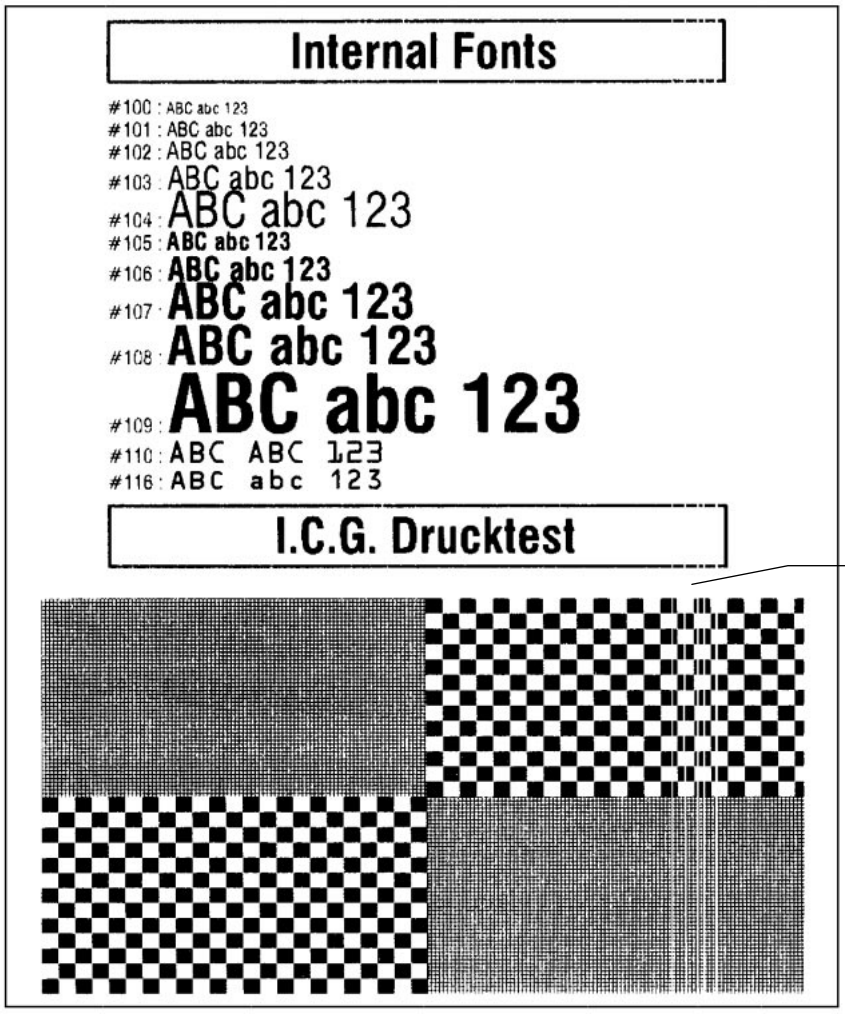
**Note:** By defining the Punch Offset in the label format, the position of the label at the dispensing edge may be varied. The length defined via Punch Offset must be regarded as a non-printing area.



# Dispenser threading detail



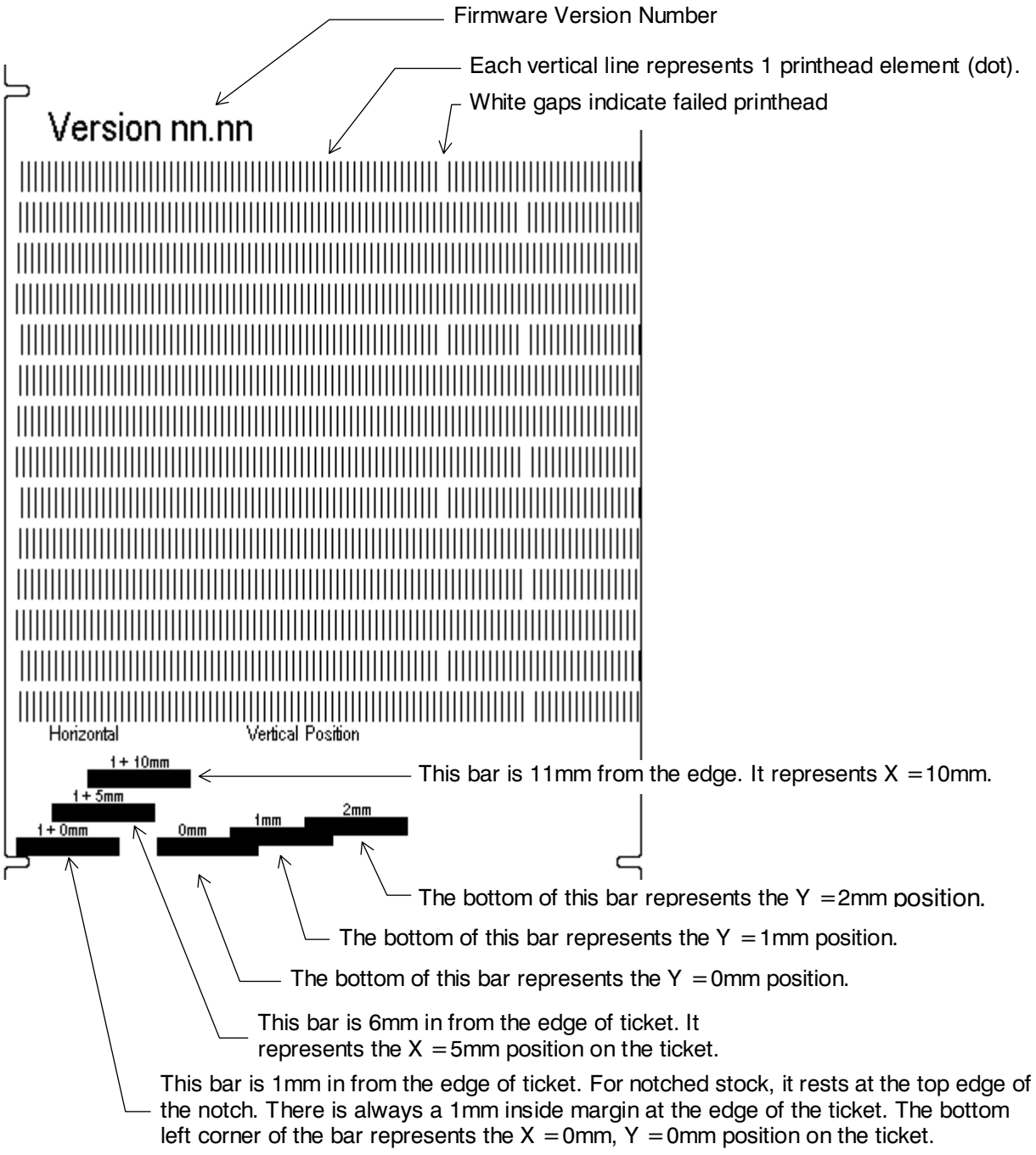
# ON/OFF Key - Fonts and Checkerboard Pattern


Internal Fonts
#100 : ABC abc 123
#101 : ABC abc 123
#102 : ABC abc 123
#103 : ABC abc 123
#104 : ABC abc 123
#105 : ABC abc 123
#106 : ABC abc 123
#107 : ABC abc 123
#108 : ABC abc 123
#109 : ABC abc 123
#110 : ABC ABC 123
#116 : ABC abc 123
I.C.G. Drucktest

White lines show bad printhead elements

# FEED Key - Notched stock test  ON/OFF & FEED – Notchless stock test

The notched stock test and notchless stock test are very similar. The only difference is that the notchless stock test does not require a notch to print. The notched stock test does require a notch, and will not print if no notches are sensed.


Firmware Version Number
Each vertical line represents 1 printhead element (dot).
White gaps indicate failed printhead
Version nn.nn
Horizontal
Vertical Position
1 + 10mm
1 + 5mm
1 + 0mm
0mm
1mm
2mm
This bar is 11mm from the edge. It represents X = 10mm.
The bottom of this bar represents the Y = 2mm position.
The bottom of this bar represents the Y = 1mm position.
The bottom of this bar represents the Y = 0mm position.
This bar is 6mm in from the edge of ticket. It represents the X = 5mm position on the ticket.
This bar is 1mm in from the edge of ticket. For notched stock, it rests at the top edge of the notch. There is always a 1mm inside margin at the edge of the ticket. The bottom left corner of the bar represents the X = 0mm, Y = 0mm position on the ticket.

# Bar codes, Lines

| MVT 2 | MVT 3 | Easy Plug | |
|---|---|---|---|
| EK | EAN 8 | 0 | CODE EAN8 |
| EL | EA13 | 1 | CODE EAN13 |
| UA | UPCA | 2 | CODE UPCA |
| 93 | C93 | 3 | CODE 93 |
| 5 I | 2/5 I | 4 | CODE 2/5 INTERLEAVED |
| 5 M | 2/5 M | 5 | CODE 2/5 MATRIX |
| 5 5 | 2/5 5 | 6 | CODE 2/5 5 STRICHE |
| 39 | C39 | 7 | CODE 39 |

| MVT 2 | MVT 3 | Easy Plug | |
|---|---|---|---|
| CB | CB | 8 | CODE NW7 (CODABAR) |
| UE | UPCE | 9 | CODE UPCE |
| E2 | E2 | 10 | CODE ADD ON 2 |
| E5 | E5 | 11 | CODE ADD ON 5 |
| IT | ITF | 12 | CODE ITF |
| - | C128 | 13 | CODE 128 |
| - | MSI | 14 | CODE MSI |
| - | E128 | 15 | CODE EAN128 |

# LINIEN & RECHTECKE

Linientyp in unterschiedlichen Dicken

Spacing konstant oder proportional bei Änderung der Liniendicke

| | | |
|---|---|---|
| Typ 0 | | |
| Typ 1 | | konstant |
| Typ 2 | | konstant |
| Typ 3 | | konstant |
| Typ 4 | | proportional |
| Typ 5 | | proportional |
| Typ 6 | | proportional |
| Typ 7 | | proportional |
| Typ 8 | | konstant |
| Typ 9 | | konstant |
| Typ 10 | | konstant |
| Typ 11 | | konstant |
| Typ 12 | | konstant |

## BEISPIELE

| | |
|---|---|
| Linientyp: | 8 |
| Liniendicke: | 10 |
| Linienlänge: | 30 |
| Drehung: | 0° |

| | |
|---|---|
| Linientyp: | 5 |
| Liniendicke: | 2.5 |
| Rechteckbreite(x): | 40 |
| Rechteckhöhe(y): | 10 |
| Drehung: | 90° |

| | |
|---|---|
| Linientyp: | 3 |
| Liniendicke: | 0.5 |
| Rechteckbreite(x): | 30 |
| Rechteckhöhe(y): | 10 |
| Drehung: | 0° |

| | |
|---|---|
| Linienyp: | 0 |
| Liniendicke: | 3 |
| Rechteckbreite(x): | 30 |
| Rechteckhöhe(y): | 10 |
| Drehung: | 0° |

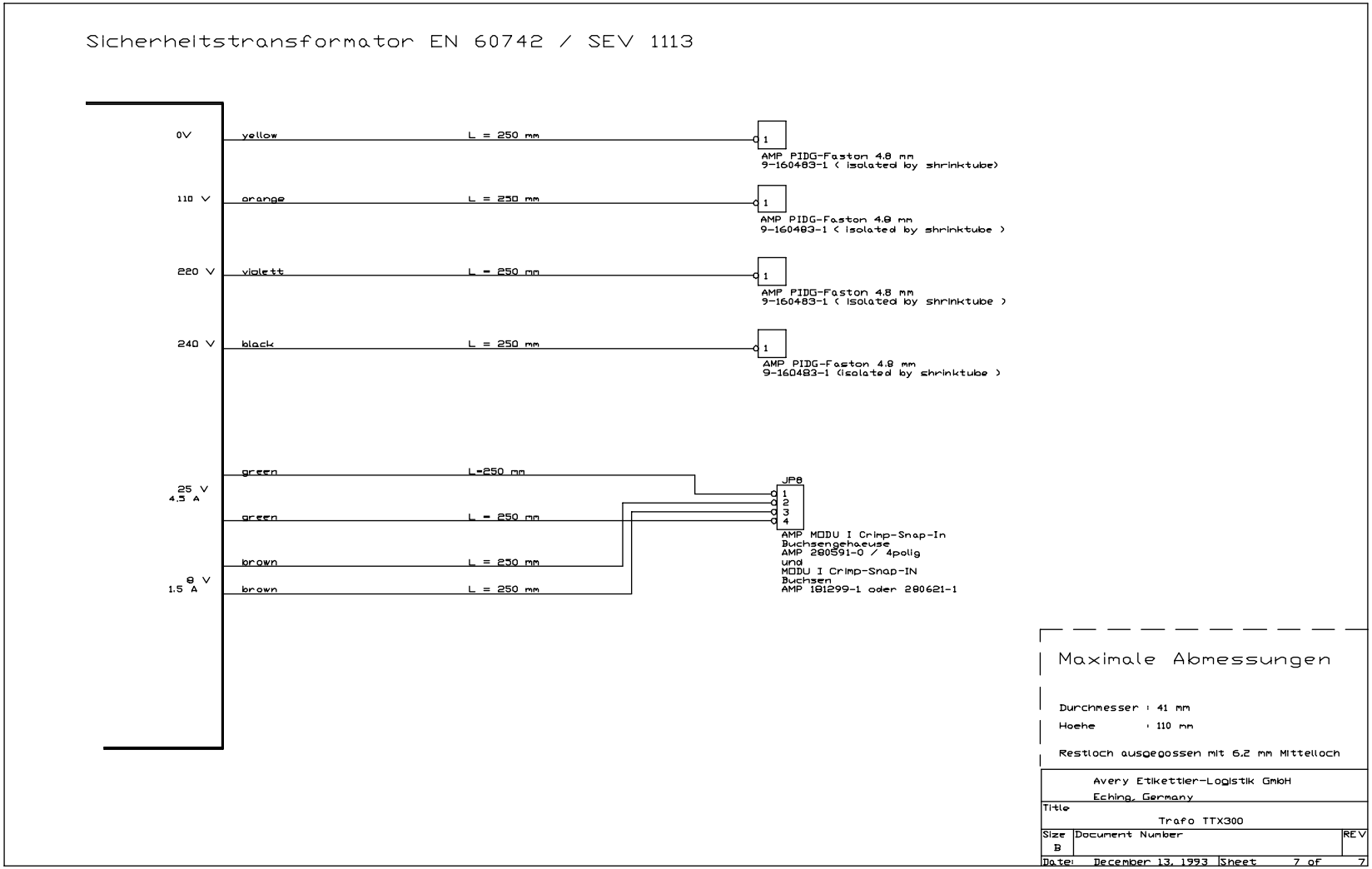
Vorschubrichtung

# Technical Specification

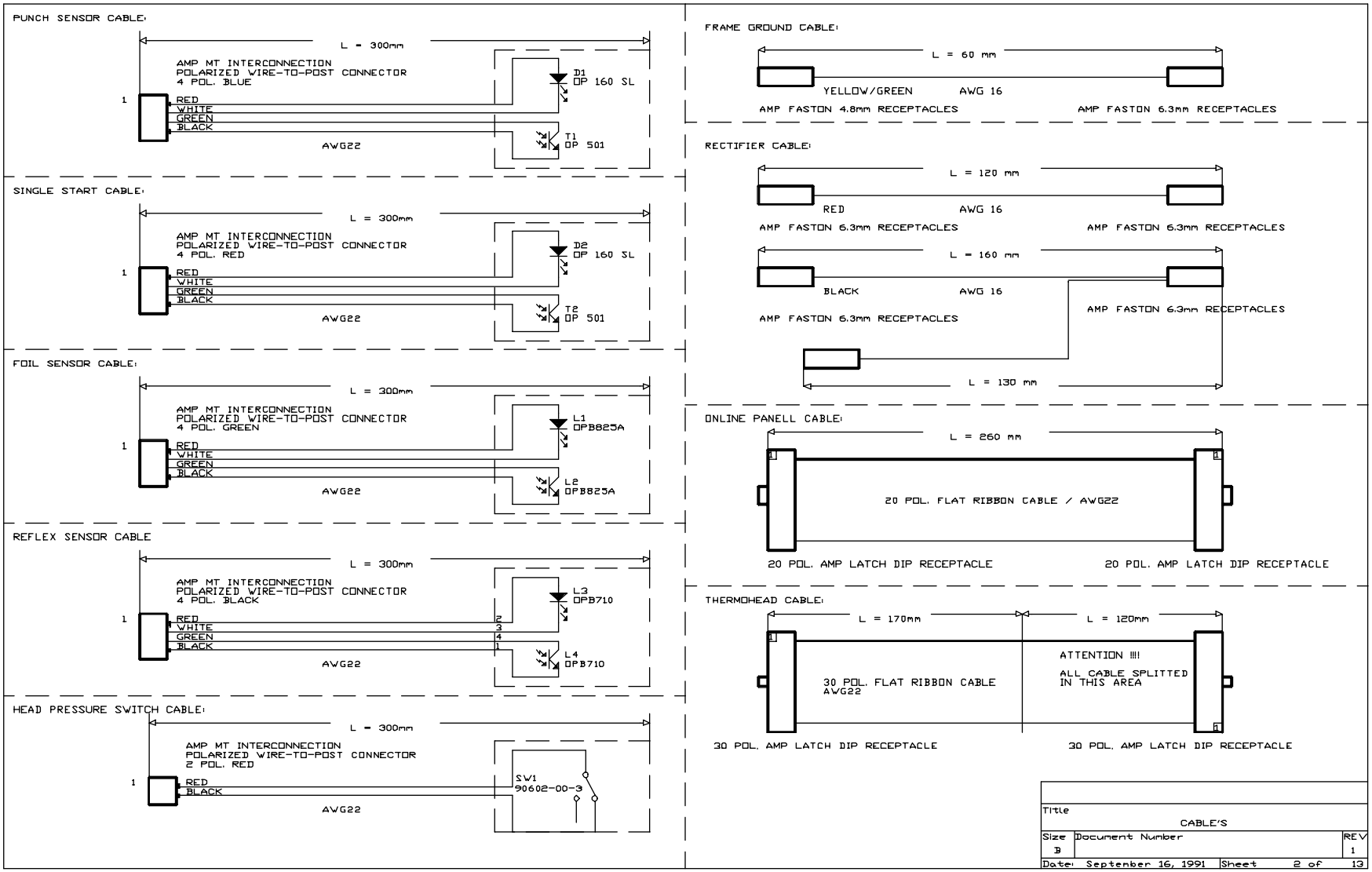
| | |
|---|---|
| Print technology | Thermal and Thermal transfer with Thinfilm print head |
| Resolution | 7,56 d/mm – standard |
| Print width | 40 to 105,6 mm |
| Emulation | Easy Plug |
| Print speed | 100 mm/sec |
| Interface | Serial Port RS 232 |
| Cards | 1 slot for RAM card or PROM card up to 128 KB |
| Memory | 512 KB dynamic RAM |
| Print ratio | 100 % 1:1 |
| Gap recognition<br>gap dimensions | Self-initialising gap sensor with 0-12 mm variable adjusting range,<br>length of punch : 0.8 to 14 mm,<br>width of punch : min. 4mm<br>Reflex marking sensor (only via NISTAN with 2-12 mm variable adjusting range<br>Marker length : 4 mm<br>width : min 10 mm |
| Fonts | 17 fonts including OCR-A and OCR-B |
| Character modification | Magnification in X/Y direction up to factor 8<br>Rotation 90, 180, 270, 360 degree |
| Barcodes | EAN 8, EAN 13 with ADD ON 2 and 5, UPC-A, UPC-E,<br>Code 39, Code 93, Code ITF, Codabar, Code 128,<br>Code 2/5M, Code 2/5I, Code 2/5 % bar, EAN 128 |
| Barcode Modification | Magnification in x-direction up to factor 8<br>in Y-direction from 1 to 100 mm<br>rotation 90, 180, 270, 360 Grad |
| Graphics | Download is supported |
| Graphic Modification | Magnification in X/Y direction up to factor 8 |

| | | | |
|---|---|---|---|
| | | Rotation 90, 180, 270, 360 degree | |
| Material stock | | width of media: | 110 mm |
| | | Inner roll diameter: | 1.5 “, 2”, 3”, 4” |
| Media Material | | Self adhesive, plastics and card boards compatible to Thermal and Thermal transfer print with a weight of 70 up to 180 gr/sqm and a thickness of 0.05 up to 0.25mm | |
| Label size | width: | | 40 – 110 mm |
| | | length: | 5 to ~350 mm |
| Ribbon | | Outer diameter: | max. 80 mm |
| Electric specification | | 110, 220, 240 Volt +/- 10% at 48/63 Hz | |
| Power consumption | | 230 VA | |
| Environmental Specification | | Operating temperature: | +5 to +35 degree C |
| | | Storage temperature: | -20 to +70 degree C |
| | | Humidity: | 45 to 75% not condensing |
| Noise emission | | <75 dbA | |
| Weight | | 8,5 kg | |
| Dimensions | | 245x242x350 mm (WxHxD) | |
| Construction | | Compact and light weight construction in especially shielded housing, all mobile axles pivoted, open assembly of parts and components for easy operating and service | |

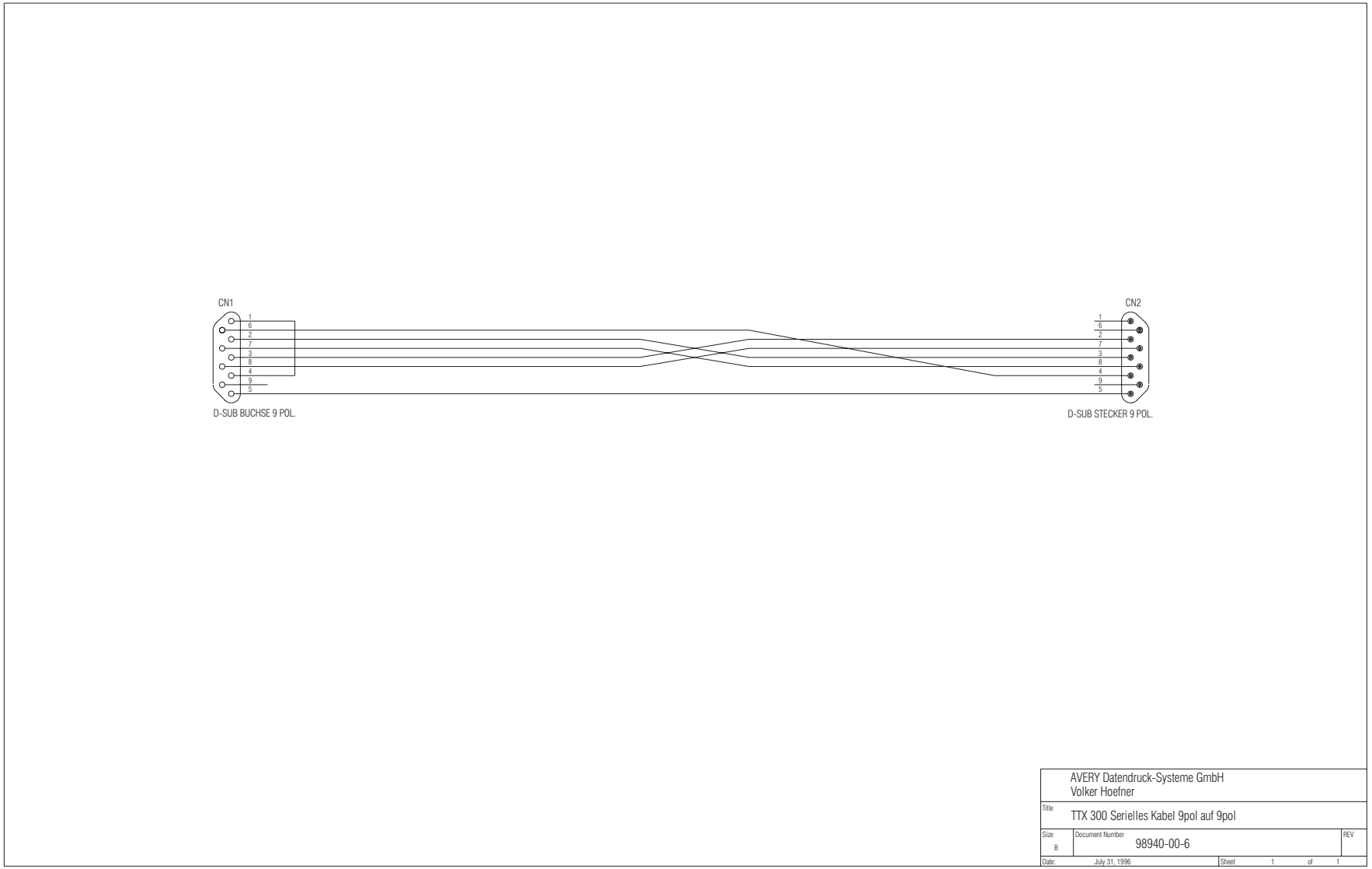
# Cable Drawings



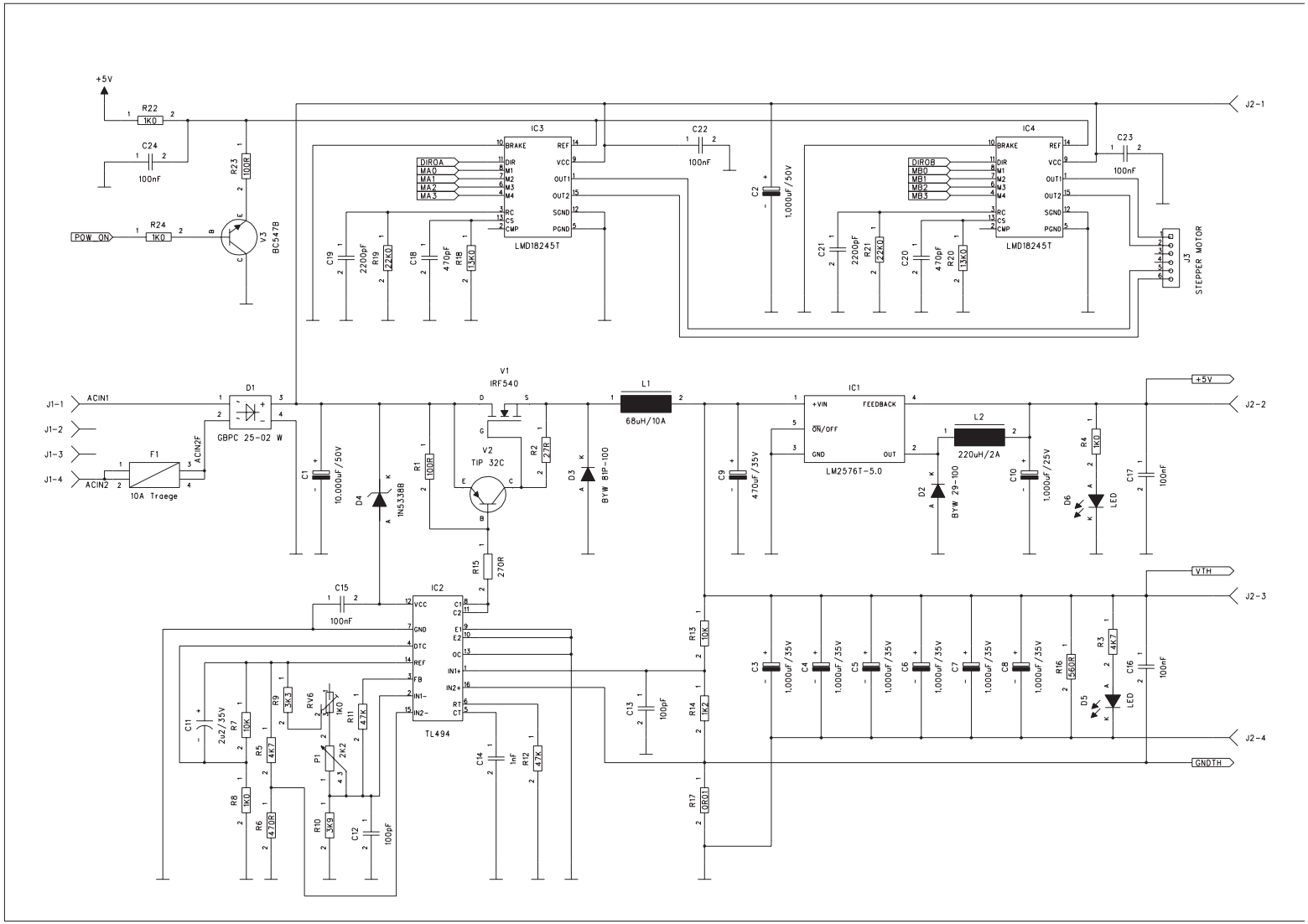
## Internal Cables

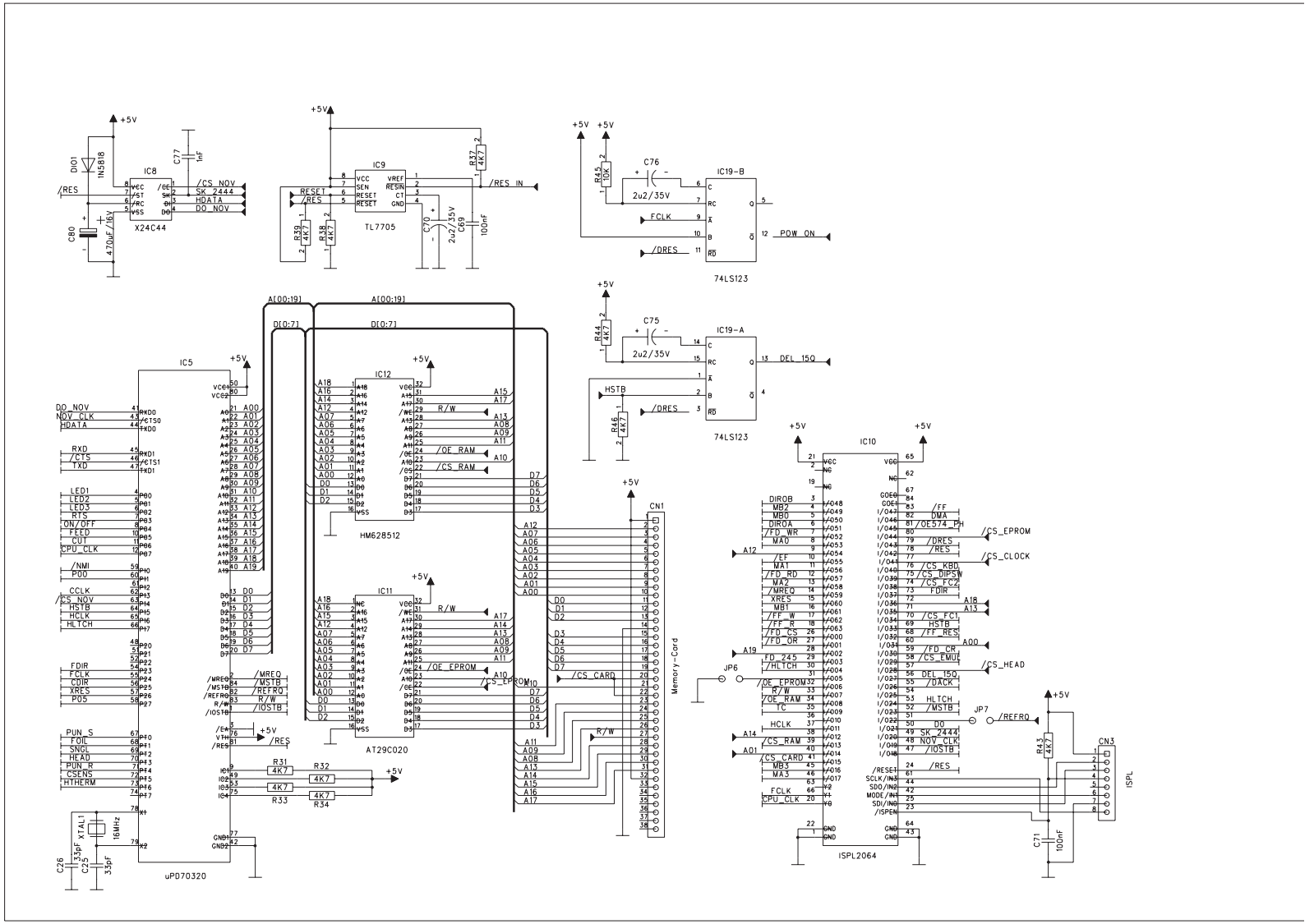


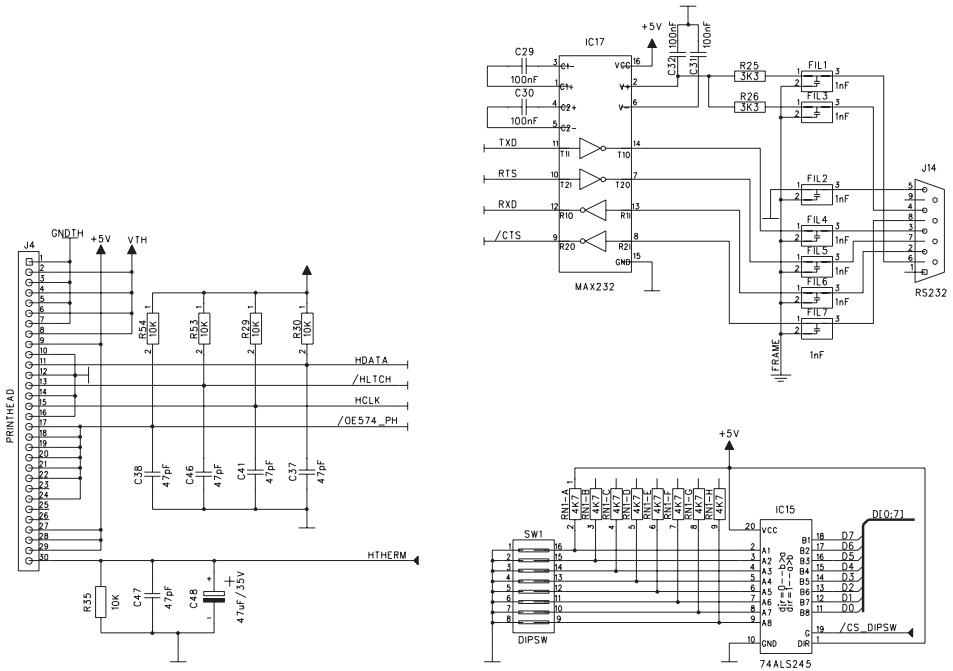
## RS232 Interface Cable

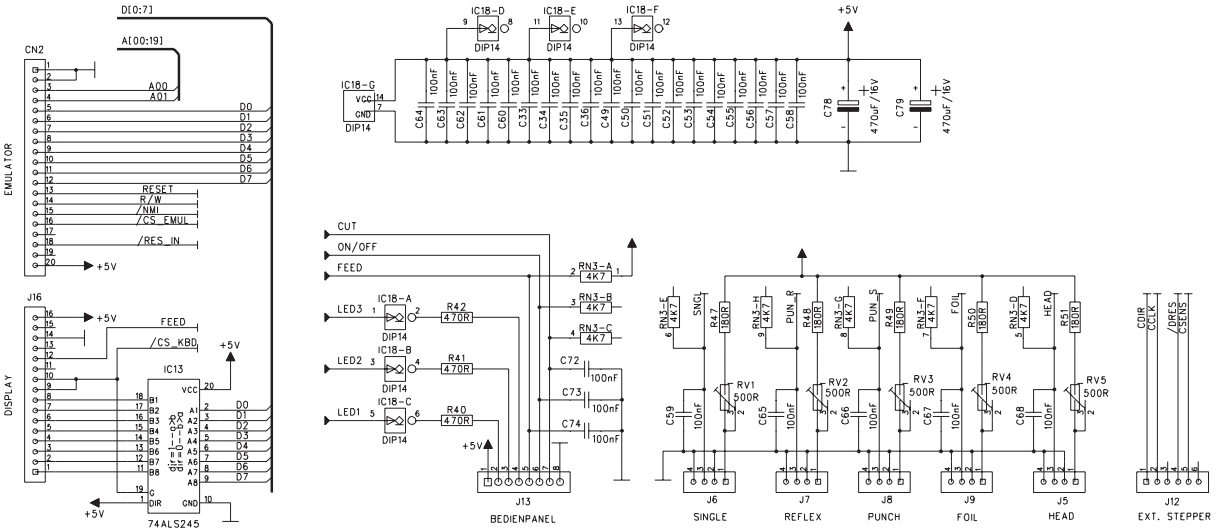


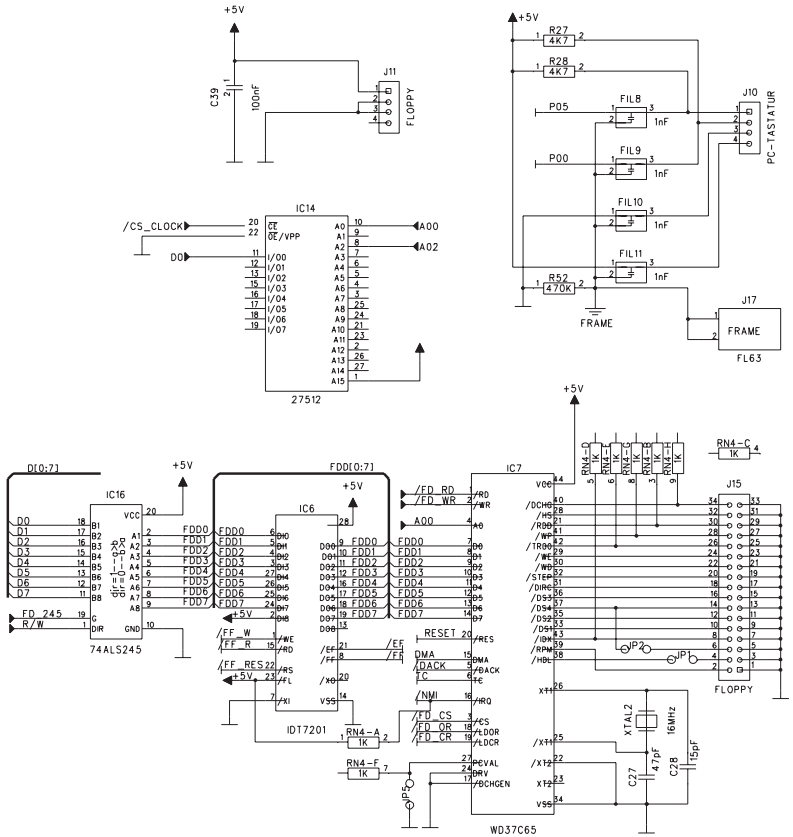
# Circuit Diagrams



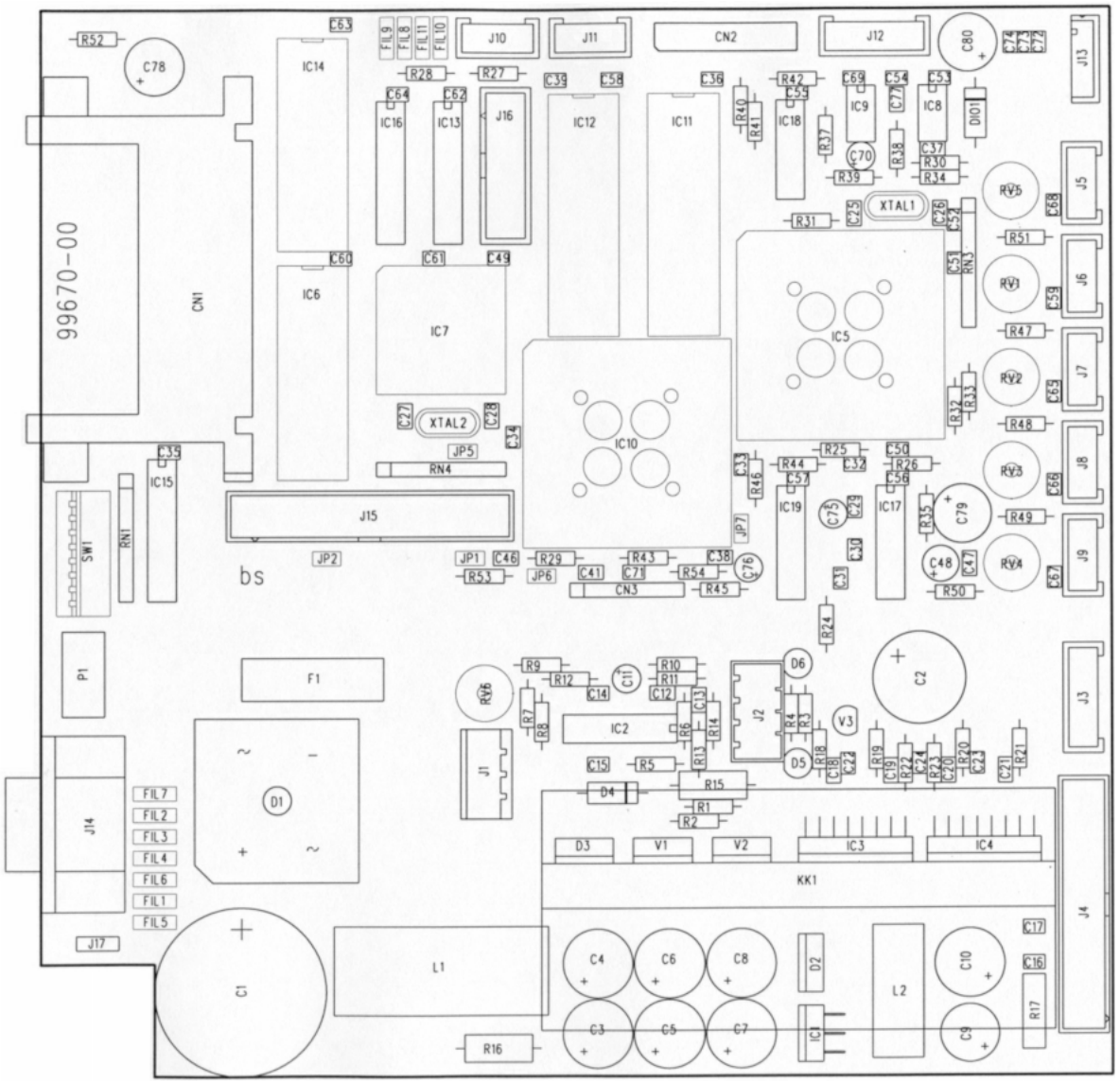

+5V
DIO1
1N5818
C77
1nF
IC8
/RES
/CS_NOV
SK_2444
HDATA
DO_NOV
X24C44
C80
470uF/16V
IC9
TL7705
R37
4K7
/RES_IN
R39
4K7
R38
4K7
C70
2u2/35V
C69
100nF
R45
10K
C76
2u2/35V
IC19-B
FCLK
/DRES
POW_ON
74LS123
R44
4K7
C75
2u2/35V
IC19-A
DEL_15Q
HSTB
/DRES
R46
4K7
74LS123
A[00:19]
D[0:7]
IC5
DO_NOV
NOV_CLK
HDATA
RXD
/CTS
TXD
LED1
LED2
LED3
RTS
ON/OFF
FEED
CUT
CPU_CLK
/NMI
P00
CCLK
/CS_NOV
HSTB
HCLK
HLTCH
FDIR
FCLK
CDIR
XRES
P05
PUN_S
FOIL
SNGL
HEAD
PUN_R
CSENS
HTHERM
XTAL1
16MHz
C26
33pF
C25
33pF
uPD70320
IC12
HM628512
R/W
/OE_RAM
/CS_RAM
IC11
AT29C020
/OE_EPROM
/CS_EPROM
/MREQ
/MSTB
/REFRQ
R/W
/IOSTB
/RES
R31
4K7
R32
4K7
R33
4K7
R34
4K7
CN1
Memory-Card
/CS_CARD
IC10
ISPL2064
/CS_EPROM
/CS_CLOCK
/CS_KBD
/CS_DIPSW
/CS_FC2
FDIR
/CS_FC1
HSTB
/FF_RES
/FD_CR
/CS_EMUL
/CS_HEAD
/DACK
HLTCH
/MSTB
/REFRQ
/RES
/FF
DMA
/OE574_PH
/DRES
/RES
JP6
JP7
R43
4K7
CN3
ISPL
C71
100nF


GNDTH
+5V
VTH
J4
PRINTHEAD
R54 10K
R53 10K
R29 10K
R30 10K
HDATA
/HLTCH
HCLK
/OE574_PH
C38 47pF
C46 47pF
C41 47pF
C37 47pF
HTHERM
R35 10K
C47 47pF
C48 47uF/35V
IC17
C29 100nF
C30 100nF
C32 100nF
C31 100nF
TXD
RTS
RXD
/CTS
MAX232
R25 3K3
R26 3K3
FIL1 1nF
FIL3 1nF
FIL2 1nF
FIL4 1nF
FIL5 1nF
FIL6 1nF
FIL7 1nF
FRAME
J14
RS232
SW1
DIPSW
IC15
74ALS245
DIO:7]
/CS_DIPSW

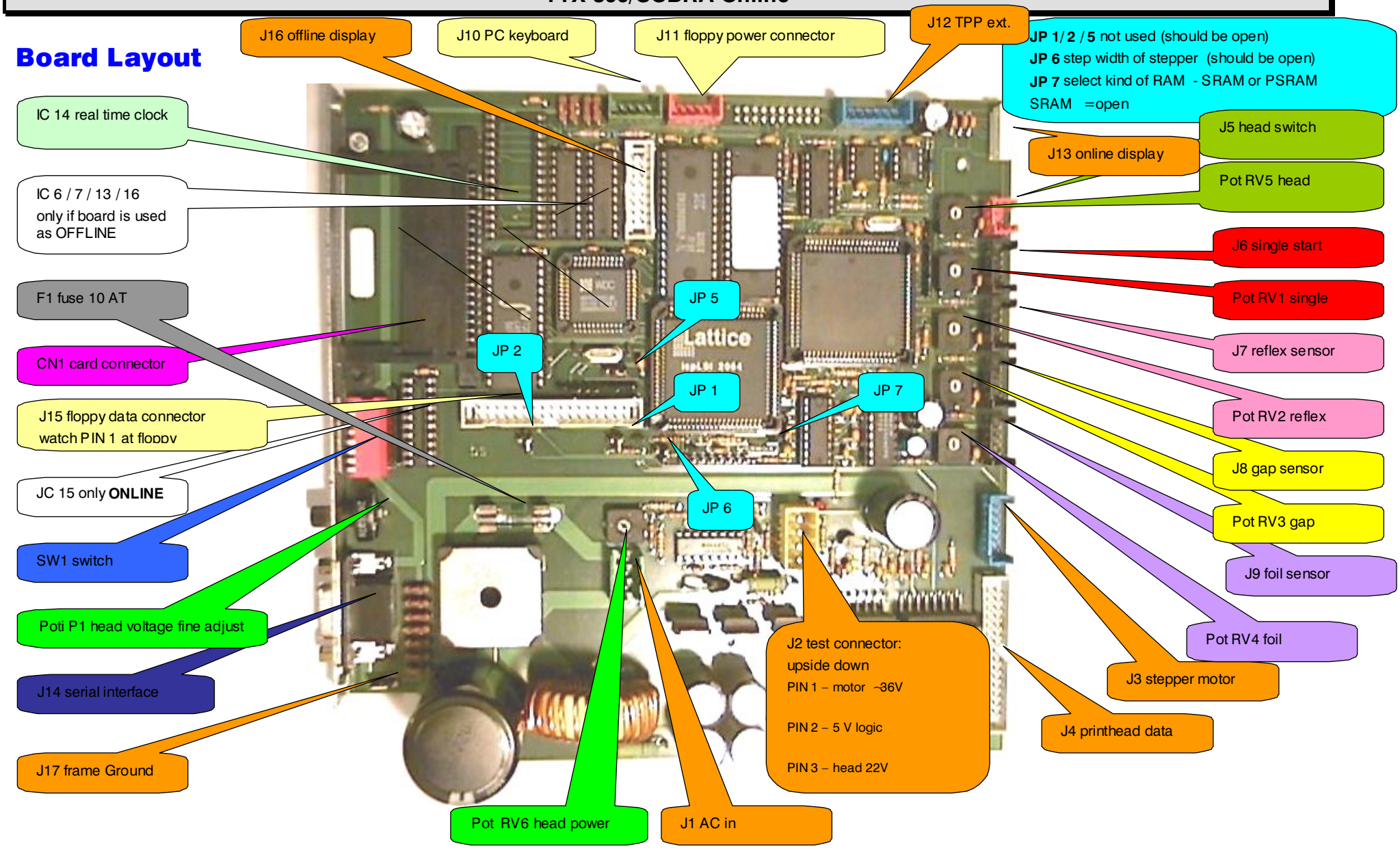

D[0:7]
A[00:19]
CN2
EMULATOR
A00
A01
D0
D1
D2
D3
D4
D5
D6
D7
RESET
R/W
/NMI
/CS_EMUL
/RES_IN
+5V
J16
DISPLAY
FEED
/CS_KBD
IC13
74ALS245
DIR
GND
IC18-D
IC18-E
IC18-F
IC18-G
DIP14
100nF
470uF/16V
CUT
ON/OFF
FEED
LED3
LED2
LED1
IC18-A
IC18-B
IC18-C
R42
R41
R40
470R
RN3-A
RN3-B
RN3-C
4K7
C72
C73
C74
J13
BEDIENPANEL
SNGL
PUN 8
PUN 5
FOIL
HEAD
R47
R48
R49
R50
R51
180R
RV1
RV2
RV3
RV4
RV5
500R
J6
SINGLE
J7
REFLEX
J8
PUNCH
J9
FOIL
J5
HEAD
COIR
CCLK
/DRES
CSENS
J12
EXT. STEPPER


+5V
C39
100nF
J11
FLOPPY
R27
4K7
R28
4K7
P05
P00
FIL8
FIL9
FIL10
FIL11
1nF
J10
PC-TASTATUR
R52
470K
FRAME
J17
FL63
IC14
/CS_CLOCK
DO
A00
A02
27512
D[0:7]
IC16
74ALS245
FD_245
R/W
FDD[0:7]
IC6
IDT7201
/FF_W
/FF_R
/FF_RES
/FF
/EF
RESET
DMA
/DACK
TC
/NMI
/FD_CS
/FD_CR
IC7
WD37C65
/FD_RD
/FD_WR
A00
RN4-A
RN4-C
RN4-F
RN4-G
RN4-H
1K
J15
FLOPPY
JP1
JP2
JP5
XTAL2
16MHz
C27
47pF
C28
15pF

## Component Diagram



## Board Layout



# Index

**A**

Adjustment of DIP switches....12
Adjustment of print head temperature..13
Appendix....30

**B**

Barcodes....38
base plate....5, 19, 20, 24

**C**

Cables, internal....41
Card slot....6
Cards....6, 38
Changing and cleaning the print head..14
Character modification....38
CK01....23, 24
Cleaning the feed roller....15
Cleaning the gap sensor....15
Cleaning the material and ribbon guides15
Condition....16
Construction....39
Contents....2
Copyright....4
Corrective Action....16
CUT....11, 12, 18, 28

**D**

DATA....12, 18
Diagram....43
Dimension....39
Dismount inner, vertical base plate....20
Dismount Mechanics....19
Dispenser....32
Dispenser threading detail....32

**E**

Electric specification....39
Emulation....38
Environmental Specification....39
ERROR....12
Errors....16

**F**

Factory reset....29
FEED....8, 11, 16, 18, 28, 34
FEED Key....34
feed roller....8, 14, 19, 20, 24
Fonts....33, 38
Front panel....11
Functions of keys....11
Functions of LED elements....12
Fuses....22
Fuses of power supply....22

**G**

Gap / Material Sensor....23
gap dimensions....38
Gap recognition....38
Gap sensor test....18
Graphics....39

**H**

Head position sensor test....18

**I**

input filter....22
Inserting the label material....8
Inserting the thermal transfer ribbon....7
Interface Cable....42

**L**

Label size....39

**M**

Maintenance....14
Material stock....39
Media Material....39
Memory....16, 38
Micro switch....24, 28
Motor....24

**N**

Narrow material web adjustment....9

Noise emission ..... 39
Notched stock ..... 34
Notchless stock ..... 34

**O**

ON/OFF ..... 11, 16, 17, 18, 28, 33, 34
Operation ..... 11
Option
    Dispenser ..... 31
    rewinder ..... 30
Overview ..... 4, 14

**P**

POWER ..... 12
Power consumption ..... 39
Power supply ..... 22
Print head ..... 25
print head fixation ..... 20, 25
print head pressure lever ..... 24
Print ratio ..... 38
Print speed ..... 38
Print technology ..... 38
Print width ..... 38

**R**

Rear housing ..... 19
Removal of material and ribbon ..... 10
Remove board ..... 21
resolution ..... 38
Ribbon ..... 15, 16, 17, 18, 27, 28, 39
Ribbon rewind ..... 27
Ribbon sensor test ..... 18
Ribbon unwind ..... 27
round belt ..... 24
RS232 Interface Cable ..... 42

**S**

Sensor / Ribbon unwinder ..... 23
Sensor check routine ..... 17, 28
Serial interface connection ..... 6
Service ..... 19
Setting and connecting of printer ..... 5
Setup ..... 5
Start / connection to computer ..... 11
Status print out ..... 17

**T**

Tag / Label material ..... 15
Technical Specification ..... 38
Transformer ..... 21
Troubleshooting ..... 12, 16

**W**

Weight ..... 39
Wiring ..... 40